

Henry C. Pearson,
F. R. G. S.,
Founder

Eduard Lyman Bill,
Publisher

INDIA RUBBER WORLD

William M. Morse,
Editor

Webster Norris,
Associate Editor

B. Brittain Wilson,
Business Manager

Volume 90

September 1, 1934

Number 6

Contents

Articles

	Pages
MAN LOAD CONTROL.....	J. D. Towne 29
PARA-GRAPHS	31
DISTRIBUTERS' TIRE STOCKS IN THE UNITED STATES AS OF APRIL 1, 1934.....	32
THE AWAKENING EAST.....	William B. Wiegand 33
SPlicing SUBMARINE CABLE INSULATION.....	36
RUBBER PAINTS	Joseph Rossman 37
RETRADING	D. C. McRoberts 39
RUBBER TRAFFIC MARKERS	Allan Williams 42
ANNALS OF RUBBER.....	43
MONTHLY EXPORT RESTRICTION QUOTAS.....	E. G. Holt 68

Departments

	Pages
Editorials	44
What the Rubber Chemists Are Doing.....	45
Rubber Bibliography	46
New Machines and Appliances.....	47
Goods and Specialties.....	49
Rubber Industry in America.....	50
Financial	52
New Incorporations	53
Obituary	53
Book Review	56
New Publications	56
Rubber Industry in Europe.....	57
Far East	59
Patents	61
Machinery, Process, Chemical, General	
Trade Marks	64
Interesting Letters	68
Foreign Trade Information	78
Rubber Trade Inquiries.....	80
MARKET REVIEWS	
Crude Rubber	65
Reclaimed Rubber	69
Compounding Ingredients	71
Cotton and Fabrics	75
Rubber Scrap	78

Departments

	Pages
STATISTICS	
London Stocks	80
and Liverpool	69
Malaya, British, Exports and Imports ..	68
United States	
and World, of Rubber Imports, Ex-	
ports, Consumption, and Stocks ..	69
for May, 1934	80
Imports by Customs Districts	80
for 1934 by Months.....	72
Latex	78
Production, Rubber Goods	80
Tire	78
Reclaimed Rubber	69
World and United States, of Rubber Im-	
ports, Exports, Consumption, and	
Stocks	69
Rubber Absorption	78
Shipments	72
CLASSIFIED ADVERTISEMENTS ..	79
ADVERTISERS' INDEX	86

Published monthly by Bill Brothers Publishing Corp.,
420 Lexington Ave., New York, N. Y. Cable Address:
ELBILL, New York. Subscription \$3.00 per year post-
paid in the United States; \$4.10 per year postpaid to
Canada; \$3.50 per year postpaid to all other countries.



Other Bill publications are: *Drapery Profits*, *Premium Practice*, *Radio Merchants*, *Rug Profits*, *Sales Management*, *Soda Fountain*, and *Tires*.

Contents Copyright, 1934.

WHAT'S NEW TODAY?

Here it is—

AGE-RITE HP

THE LATEST ADDITION
TO AN ALREADY
GOOD LINE

An ANTI-FLEXCRACKER and a
HIGH TEMPERATURE RESISTER, all in one.

Also it is a real ANTIOXIDANT as measured by
the Oxygen Bomb, Geer Oven, or Air Bomb.



R. T. Vanderbilt Co.

230 Park Avenue

NEW YORK, N. Y.

INDIA RUBBER WORLD

Published at 420 Lexington Avenue, New York, N. Y.

Volume 90

New York, September 1, 1934

Number 6

Man Load Control

Forecasting the Man Hours Required at Various Production Schedules

J. D. Towne ¹

MAN LOAD CONTROL—MASTER SHEET No. 1

TIRE BUILDING

(MAN HOURS REQUIRED PER WEEK IN EACH DEPARTMENT, AT VARYING PERCENTS OF PRODUCTION)

Scheduled Capacity	Idle	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Manufacturing Operations	No Tires	300	600	900	1200	1500	1800	2100	2400	2700	3000
PROCESS DIVISION											
Rubber—Cut and sift.....											
Compound											
Banbury mixer											
Mill room											
Tread calender											
Train "											
Gum "											
STOCK PREPARATION											
Beads (.046 hr. per tire)...	—	14	28	42	56	69	83	97	111	125	138
Bias cutters											
Camachine											
Band building											
Splicing tables											
Lay up tables											
Liner rewind											
TIRE BUILDING											
Flat drum											
Banner machines (.49 hr./tire) —		30-15 hrs.	60-30 hrs.	90-45 hrs.	120-59 hrs.	150-74 hrs.	180-89 hrs.	210-103 hrs.	240-118 hrs.	270-132 hrs.	300-147 hrs.
Goodrich "											
Finishing											
Stock boys											
CURING											
Watch case heaters											
Vertical heaters											
Air bag											
Inspection											
Tire painters											

MAN load control has the same relation to manufacturing labor and its control as the financial budget has to general expenditures and their control. That is, when a financial budget is properly developed and set up, it acts as an absolute control and check over all expenditures covered by it, giving an accurate measuring stick whereby shop expenses (as

well as all other expenses) can be gaged in relation to the per cent capacity at which the plant is operating. Unless a financial budget is capable of effecting this control, it is nothing more than a forecast and has missed its principal opportunity to be of real value as a function of management in developing complete operating control.

¹ Consulting engineer, Dayton, O.

The plan, development, and execution of man load control parallels, from start to finish, the financial budget.

Man load control can only be started in any manufacturing organization after elemental time analysis, or good time study, has been used long enough to assure the fact that accurate standards have been set on practically all productive and non-productive operations, both direct and indirect labor. The accuracy with which these standards have been set will affect to a great degree the accuracy of the figures of the man load control. Time study should be the basis for any calculation of productive possibility; such calculation will be in error to the same extent the time study has erred. With time study as the basis for man load control, i. e., determining the hours necessary to be worked in every department for any given schedule of production, it is most essential that the time studies be accurate.

The development of the master control sheets is simply a series of calculations based principally upon time-study standards. One large manufacturer of tires and tubes, fan belts, etc., developed a separate master sheet completely to cover each division of manufacture contained in the organization:

A—Tire Building	E—Radiator Hose
B—Tubes	F—Etc., Etc.
C—Fan Belt	G—General
D—Roderwald Belt	

The master control sheet No. 1, for tire building, is shown at the beginning of this article. The other divisions are handled in exactly the same manner.

First, the average or typical make-up of a weekly schedule run in the shop is determined from previous records, as well as from forecasts from qualified sources, as to what the schedule will be in the future, in case any substantial changes in class of product is contemplated. This average schedule shows the percentage of first grade, second grade, third grade, special brands, truck and bus tires, etc., at various degrees of productivity. Such an average schedule, on a daily basis of 2,300 tires, is shown below:

	Tires
Heavy Duty 4-Ply Black	755
Heavy Duty 6-Ply Black	284
Heavy Duty 4-Ply White	37
Heavy Duty 6-Ply White	56
Second Grade	370
Third Grade	450
Heavy Duty Truck—Black	72
Heavy Duty Truck—White	18
Special Service—Black	44
Special Service—White	11
Bus Balloon—Black	67
Bus Balloon—White	7
Second Grade Truck	39
Special Brands	90
Total	2,300

After this, a 100% capacity figure is determined from actual departmental capacities. Production figures are then calculated from these capacities in steps of 10% decrements down to the point where the plant may be shut down as to production, but a clerical force as well as watchmen and maintenance men are still on the payroll. These figures at the various steps of production are listed across the top of a large sheet from left to right, showing both the percentage of productivity and the actual quantity of tires represented at each step.

At the extreme left of the sheet, listed from top to bottom in the approximate order of manufacturing procedure, are shown the various departments, or payroll labor sub-divisions, entering into tire building manufacture. Most of these sub-divisions, especially those under the general headings of "Processing" and "Stock Preparation," are involved in other divisions of plant manufacture besides tire building. However, they must be shown on this sheet as well as the master control sheets of the other divisions, but on each master control sheet

are to be calculated and shown only the hours required to produce the several productive steps, or schedules, as shown across the top of each division sheet. These payroll labor sub-divisions for tire building follow:

PROCESSING DIVISION	STOCK PREPARATION
Rubber—Cut and Sift	Beads
Compound	Bias Cutters
Banbury	Camachine
Mill Room	Band Building
Tread Calender	Splicing Tables
Train Calender	Lay Up Tables
Gum Calender	Liner Rewind
TIRE BUILDING	CURE
Flat Drum	Watch Case Heaters
Banner Machines	Vertical Heaters
Goodrich Machines	Air Bag
Finishing	Inspection
Stock Boys	Tire Painters

From this point on the development of the man load control sheet is a matter of calculating from time-study standards the number of hours required in each group of labor to process, prepare, or produce the various materials needed to build the number of average tires at each production step shown across the top of the sheet. As an example of this final step in the development of the master control sheet, consider the calculations necessary to determine the hours required in bead building, as a part of stock preparation, and then Banner machine, as part of actual tire building. After these illustrations it should be comparatively easy for any competent man familiar with shop procedure and the time studies already made and standardized to apply the same methods of reasoning and calculation to the remaining labor groups and complete the sheets. These examples will be calculated on a basis of 100% operating efficiency.

Bead building is composed of, and standards have been set by the time-study department upon, the following sub-operations:

Wind and Wrap	Gum Cap
Dip	Flip Beads
Press Beads	Second Flip
Stock Boy	Gum Strip

While all these sub-operations are not necessary in manufacturing all beads, the entire group make up the department operation and must be properly considered.

The standards set upon each of the above sub-operations were totaled for each bead size and classification; then these bead sizes were grouped according to natural manufacturing groupings, and the time standards averaged for each group.

A. All passenger balloons up to and including 5.25, and all high pressures up to and including 34 x 4½. None of these beads use either second flip or gum strip and, consequently, average about the same time per bead.

B. All passenger balloons up to and including 6.00 x 21, and all high pressures from 30 x 5 to 36 x 6 inclusive, using single flip. Practically all these beads are built with a gum strip or enough other additional work to cause a uniform average standard allowance.

C. All passenger balloons from 6.00 x 22 to 7.50 x 17 inclusive, and bus balloons 6.00 x 20 to 7.00, and 7.50 x 15. These, all single-flip beads, are dipped and average approximately the same time per bead.

D. All machine-flipped beads having 2 flips.

E. All hand-flipped beads.

After the average time per bead, for each of the groups described above, was accurately determined, these standards were applied to the average, or typical, schedule of various sizes and kinds of tires, consequently securing a proper weighting for each kind, or grouping, of bead. When the total bead allowance was determined in this manner, the average standard per bead was secured by dividing. This figure was then multiplied by the correct factor (approximately 2.2 beads per tire) to place the calculation on a "per tire" basis. Expressed

in hours, this allowance is 0.046-hour per tire for all labor connected with bead building.

From this point the calculation is merely the multiplication of 0.046 by the number of tires shown at each step of productivity across the top of the master control sheet. It can also be seen quite readily that for any point of production between the steps shown on the sheet it is only necessary to multiply the constant, 0.046 per bead, by the scheduled number of tires. It must be kept in mind, however, that this constant, 0.046, will remain accurate only as long as all contributing conditions remain as they were when this calculation was made. As the balance in tire sizes and bead groupings, etc., etc., changes, this constant should be refigured on the altered basis. This calculation, however, should be comparatively easy and only necessary, as a rule, after long intervals.

The calculations necessary in determining the hours required for tire building on the Banner machines are in no sense so detailed as those just described for bead building and are more typical of the calculations to be made to complete the balance of the sheet.

The standards set for the Banner machines, by the time-study department, cover the complete operation for each tire size in just one set of figures. That is, there are no sub-operations to consider that carry independent standard time allowances, as were shown for bead building. These standards for each tire size built on the Banner machines were applied to the typical schedule shown previously. By the use of the quantities shown on this schedule each standard was multiplied out, and the total divided by the total Banner tires scheduled. The result of these calculations showed 0.49-hour the allowable time for each tire to be built on the Banner machines. Multiplying this factor out by the number of Banner tires included in each step of production, across the top of the sheet, the required number of hours for each step was determined and posted accordingly. That no misunderstanding might arise, the actual number of Banner tires scheduled at each step is shown beside the hours required, and the constant per tire, 0.49-hour, is shown at the extreme left of the sheet beside the sub-title.

From this point on the sheet is completed according to the methods outlined for these 2 groups. Each division shown is studied from a labor basis, and the standards, covering all operations performed in each division, carefully analyzed to determine that every hour of necessary labor is covered by these standards. In cases where some minor operation has not been included in the standards, and it is not deemed advisable immediately to set new standards to include it, proper allowances must be made to cover this minor operation, and sufficient time added to the established standards so that the final figures used on the control sheet will show a true picture of all hours required in every department.

When the master control sheets are completed the real shop control as to hours worked can be immediately put into effect without further delay. As each weekly schedule is issued, a designated member of the organization calculates from the master control sheets the actual number of man hours needed in each department to produce the tires, etc., scheduled for the coming week. Each foreman, or department head, as well as the plant superintendent, is handed a copy of this "Man Load Budget" not later than Friday morning, as it applies to the work under his control. This gives each shop executive ample time to plan his production schedule and how best to use the hours allotted to him in producing it. Each morning this designated member of the organization, in effect a shop comptroller, checks the number of hours actually worked in each department against the hours budgeted

and the work produced. He then talks with each foreman individually in regard to his departmental performance, pointing out any excess hours used and endeavoring to assist him, through cooperation, to keep within the allotted hours.

At the close of each week it is well for the superintendent, or factory manager, to go over the record of each department in a foremen's meeting and have each man explain personally why his group, or department, did not work within the budgeted hours. This personal report has the very desirable effect of forcing each foreman to keep himself thoroughly posted upon the operating conditions in his group so that he can explain away any excess hours he may have used. The fact that he must become familiar with the trouble is the first and most important step in correcting such difficulties, with the result that within a comparatively short time most departments are working within the budget, with the resulting substantial decreases in labor costs.

Man load control, if properly developed from elemental time analyses or sound time study, if carefully followed up by a competent man in its relation to department heads and operating executives, and, finally, if used as a check to determine from these department heads personally exactly why their performances have fallen below par, becomes an invaluable aid to management in keeping operating costs at a minimum, while at the same time meeting production schedules and requirements. Certainly it has proved to be a most effective check upon the efficiency of not only the shop labor, but upon the ability and effectiveness of the shop executives as well.

Para-Graphs

CHLORINATED RUBBER FIREPROOFING. Cellulosic materials and fabrics are preserved and rendered fireproof by a prescribed series of chemical treatments followed by washing for removal of acid residues and then subsequent impregnation of the material with chlorinated rubber. While the process is patented, it is dedicated by the inventor to the free use of the public in the territory of the United States of America.

CEMENT REMOVER. There is considerable objection to $\frac{2}{3}$ carbon tetrachloride and $\frac{1}{3}$ rubber solvent mixture for the removal of cement from the hands of employees, particularly girls, as the fumes from the carbon tetrachloride nauseate them. Kerosene is now being used for this purpose.

STUFFED MATTRESSES. Hair is maintained in thin open-mesh sheets by spray coating it with rubber cement or latex. While still tacky, the sheet is brought into cellular form in a special machine for the purpose. The subsequently vulcanized material is then built into padded cushion or mattress form and finished with a fabric cover.

OZONE RESISTANT INSULATION. Protection of rubber insulation due to the oxidizing effects of ozone generated in high voltage circuits is obtained by a vulcanized pitch composed as follows: palm oil pitch 50 parts, rapeseed oil 50 parts, sulphur 5 parts. These ingredients are heated several hours, the final temperature reaching 300° to 350° F. The cooled mass sets to a rubber-like material. The ozone resistant insulation is prepared by mixing crude and reclaimed rubber, vulcanized pitch, and fillers. The mixing is strained, and sulphur is then incorporated on the mill. The stock is extended on the conductor as usual, and the insulation is vulcanized for 1½ hours, employing an hour to rise to 30 pounds' steam pressure (274° F.) and ½-hour cure at this pressure.

Distributors' Tire Stocks

In the United States as of April 1, 1934¹

THIS report covers stocks of tires held by both independent dealers and mass distributors, returns from these 2 groups being discussed separately below. This survey is made with the support and cooperation of the Rubber Manufacturers' Association, Inc.

Independent Dealers' Stocks

The regular semi-annual survey of tire stocks in hands of dealers shows the following comparable statistics, as of April 1, for stocks held by independent retailers in 1934 as against 1933. The number of reports received from dealers having stocks of casings was 7 greater than in April, 1933. The average number of automobile casings per dealer reporting was 79.7 on April 1, 1934, compared with 64.8 a year previous.

DEALERS' STOCKS OF AUTOMOBILE TIRES

	April 1, 1933			April 1, 1934		
	Number	Dealers Reporting	Average per Dealer	Number	Dealers Reporting	Average per Dealer
Total casings..	1,363,758	21,036	64.8	1,677,333	21,043	79.7
High pressure..	155,070	13,741	11.3	168,138	12,896	13.0
Inner tubes...	1,760,488	21,311	82.6	1,215,665	21,156	104.7
Solids	11,000	595	18.5	13,962	520	26.9

Since the survey of October 1, 1933, approximately 7,000 names have been added to the mailing list used for this survey, making the total mailing list about 87,000 in the current survey.

An analysis by volume groups has been prepared of the reports from dealers having stocks of casings, and a comparison made to the survey of April 1, 1933.

DEALERS CLASSIFIED BY VOLUME OF STOCK

	April 1, 1933			April 1, 1934		
	No. of Dealers	% of Total Dealers	No. of Casings	No. of Dealers	% of Total Dealers	No. of Casings
Less than 10.....	4,862	23.11	23,804	4,406	20.94	21,867
10 - 24.....	5,849	27.81	93,939	5,621	26.72	90,428
25 - 49.....	4,569	21.72	158,815	4,464	21.21	156,793
50 - 99.....	3,047	14.48	208,058	3,195	15.18	219,969
100 - 199.....	1,515	7.20	205,987	1,828	8.69	248,319
200 - 299.....	469	2.23	112,337	577	2.74	137,498
300 - 399.....	243	1.16	83,058	293	1.39	100,404
400 - 999.....	352	1.67	214,193	488	2.32	289,098
1000 and over ..	130	0.62	263,567	171	0.81	412,957
	21,036	100.00	1,363,758	21,043	100.00	1,677,333

The following table compares average stocks per dealer reporting each item on April 1 in the years 1926 to 1934, inclusive.

AVERAGE STOCKS PER DEALER ON APRIL 1

	1926	1927	1928	1929	1930	1931	1932	1933	1934
Total casings	63.9	70.6	81.2	94.4	83.0	78.4	66.2	64.8	79.7
Balloon casings	21.9	35.5	45.7	69.1	*	*	*	*	*
High pressure.....	*	*	*	*	22.4	15.6	12.1	11.3	13.0
Inner tubes.....	119.6	120.9	123.4	143.5	118.6	106.5	90.7	82.6	104.7
Solids, etc.	26.6	24.7	27.0	35.0	28.4	21.8	17.8	18.5	26.9

*Not tabulated separately.

The average stock of casings per dealer at present is closely comparable to what it was on the corresponding date in 1928 and 1931, and an idea of the trend among independent tire dealers may be gained from more detailed comparison of statistics for those years with those of the current survey.

¹ Special Circular No. 3,526, Rubber Section, Department of Commerce, Bureau of Foreign and Domestic Commerce, Washington, D. C.

Mass Distributors' Stocks

This section covers the stocks reported by mail order houses, automotive supply chain stores, chains operated by certain oil companies which sell tires through numerous stations, and retail stores owned or controlled by the principal tire manufacturing companies. Complete reports were received from all the above except the company-owned stores of 2 tire manufacturers; individual returns were received from a representative number of the stores of these companies. The following table shows the stocks actually reported by these companies, April 1, 1934, compared with figures secured in preceding surveys.

MASS DISTRIBUTORS REPORTED STOCKS

	April 1, 1932	April 1, 1933	April 1, 1934
Total casings	1,592,271	1,503,154	2,050,735
Inner tubes	1,775,194	1,626,003	1,941,625
Solid and cushion tires.....	4,509	2,017	978
High pressure casings	167,395	161,983	191,065

It is estimated that *total* mass distributors' stocks on April 1, 1934, including stocks held by the company stores of the 2 manufacturers who did not report complete data, amounted to 2,140,000 casings and 2,037,000 inner tubes, compared with 1,815,000 casings and 1,950,000 inner tubes on April 1, 1933, and compared with 1,900,000 casings April 1, 1932. The real increase is thus less than indicated by the incomplete figures as *reported* for these years, owing to improvement in the completeness of the reported statistics.

Summary

The casings inventory of independent tire dealers is now considerably higher than in either of the past 2 years. The average of 79.7 casings per dealer compares with 64.8 in April, 1933, and 61.3 in October, 1933. Shipments to dealers during the past 6 months have been great enough to enable them to build up substantial stocks, in which they were encouraged by the increased confidence and improved business conditions and also by an expectation that tire prices will be increased. It is possible that in addition to the increase in the average stock per dealer, the number of dealers now holding stocks may be greater than it was a year ago. Stocks of inner tubes held by dealers also reflect a substantial increase. There has likewise been an increase in stocks held by mass distributors as compared with April, 1933, but the total is less than in October, 1933.

Independent dealers were holding 132 inner tubes for every 100 casings on April 1, 1934; while mass distributors were holding only 95 inner tubes for every 100 casings. These figures compare with previous years as follows:

INNER TUBES PER 100 CASINGS

April Surveys	Independent Dealers	Mass Distributors
1931	137	110
1932	138	111
1933	129	108
1934	132	95

An idea of the true inventory position of tire distrib-
(Continued on page 36)



Elaborately Decorated Chinese Junk

The Awakening East

II — China

William B. Wiegand ¹

Shanghai

TO THE author the name Whangpoo had from childhood sounded vaguely amusing. But the actual stream, as one's steamer threads up its tortuous curves, is anything but a joke. The approach to Shanghai, one of the 6 great shipping centers of the world, presents about the busiest scene of maritime activity to be found anywhere on the globe. Junks, sampans, tugs, launches, yachts, cables, battleships, cruisers, destroyers, and submarines of 5 nations, aircraft carriers, police and custom boats, all are within a few miles of Shanghai on this muddy stream. The Whangpoo, far from being a humorous stream, may some day be the scene of one of the hottest international scraps and scrambles. For Shanghai is a priceless mart, built with foreign capital, growing rapidly in the importance and variety of its products, wanting only, for further expansion, the assurance of continued political stability.

Shanghai, unlike Japan, wears its heart on its sleeve and greets you with gaiety. People often inquire why the American or Canadian feels more at home among the Chinese than among the Japanese. The answer would seem to be that the average Chinese is a great deal more expressive, has a sense of humor, is quick to see a joke even on himself, is in general urbane, polished, and responsive.

These are, to be sure, surface characteristics and not to be confused with the essentials of character, but they strongly influence the impression received by the casual

visitor and add to his pleasure. Small wonder, then, that the passing tourist, after visiting Japan, seems to expand and to "bloom" directly he arrives in Shanghai; whereas to the seasoned dweller in the Far East these surface impressions mean very little.

Their urbanity is ubiquitous. The hotels are unequaled for service and luxury. The French Club at *thé dansant* time is a Mecca for dapper men and smartly gowned women; while in the streets an endless crazyquilt of polyglot humanity shuffles, scrapes, and walks along, or rides in rickshaws for 3¢ (U. S.) the trip.

Here, as in Japan, the automobile has come, to the benefit of industry, but to the ruination of local color. The Shanghaiese will tell you that the cry of the rickshaw coolie will soon grow fainter and in 5 years' time be entirely replaced by the honk of the motor horn. The native city is a fascinating hodge-podge of humanity, and one of the writer's never-to-be-forgotten experiences was the daily excursion into the "city" by rickshaw, when studying the ancient art of stick-ink manufacture. As you step out of your rickshaw, you are immediately surrounded by at least a hundred Chinese, old and young, who appear from every nook and crevice, consumed with good-natured curiosity as to your mission, your clothes, and what not.

The rubber industry in Shanghai, although not comparable with that of Japan, is active and important. The visitor is received with courtesy and the inevitable cup of tea which seems to turn up by magic. The rubber shoe industry is, of course, paramount, and the layout of a typical Chinese rubber plant is full of surprises. Human

¹ Director of research, Binney & Smith Co., 41 E. 42nd St., New York, N. Y.

labor is incredibly cheap and is not spared. You will see, for example, half a dozen operators solicitously observing the upper stock emerging from a miniature calender, where one or at the most two would be required in a modern New England shoe factory.

The soles will be cut by hand in a counter clockwise direction which seems hopelessly awkward to Western eyes. The canvas tops of tennis shoes are cut with scissors by numerous women workers. The soling calender rolls seem no bigger than rolling pins, and the output agonizingly slow. The vulcanizing pans, shoe cars, and in fact all the equipment gives the impression of Lilliputian or toy-house dimensions. Some of the operations are manifestly primitive and bound adversely to affect quality, but out come the shoes fair enough to look at and at costs which seem to us absurdly low.

One must bear in mind that in this warm climate there is no fuel bill; a mere shelter takes the place of thick, warm buildings; there are no bond issues, no charge for depreciation or obsolescence, no overhead to speak of, no high salaried executives, and alack, not even a research department!

These people use modern compounding ingredients, accelerators, and cures; and with the enormous home market, their propinquity to crude rubber and to the Far Eastern consuming markets, one can well foresee a strong permanent rubber industry in China.

One drawback remains—the necessity of importing a great many chemicals, but in time these will no doubt be “made in China.”

The interest in meeting a visitor was a complete revelation. Over 218 representatives came to the technical lecture, of which about 160 represented the rubber industry, the remainder being mainly interested in ink, paint, or lacquer. An interpreter is, needless to say, *a sine qua non* in Shanghai. Such an audience provides a fascinating, not to say bizarre, experience and one likely to dissipate any feeling of boredom felt in addressing audiences of one's own race. The Oriental listener is a subtle individual. His face is never a “window to the soul.” One's first sensation on being confronted with several hundred of such inscrutable “masks” is one of futility.

“How can I ever interest such an audience?”

But after the first experience this wears off and is soon replaced by a feeling that these people, although critical, are friendly and that they are quick to appreciate a sincere effort. Although not understanding your words, they pay the closest attention to your intonation and emphasis, and that is why the plan of interpreting as you go along, sentence by sentence, if need be, seems far superior to the one of preparing a translation in advance to be read by the audience.

Some of the operations to be seen in a Chinese rubber works are of a character to tickle Western risibilities. For example, in the proofing department of one factory the plan was to string the fabric over a succession of “horses” or bucks in a vacant lot, exposed to the bland rays of the Shanghai sun. The “dough” was then placed on the cloth, and 2 operators marched bravely, with the spreading knife held between them, to the far end, turned, and marched back, thus depositing a double coat. This performance was repeated till the desired number of coats had been applied.

Adjacent was another assembly which was at the starching stage. A large quantity of starch having been placed on the spread fabric at one end, 2 operators marched forward spreading the starch, which was then brushed off by other operators bringing up the rear. An occasional puff of wind would play temporary havoc with the starch, distributing it hither and yon, some of it

mingling with the dough being spread nearby! But the acid cure was the most ingenious. After a spreader knife had been placed on the now starched and dusted fabric, one workman filled a tea-kettle with the sulphur chloride solution, while a second stood opposite with a large bucket. When all was in readiness, they marched smartly along, pushing the spreading knife behind the stream of “acid” which flowed from kettle to bucket, and, be it confessed, in some part to earth!

A swarm of about 16 workmen, a good fraction of an acre of land, to do what a couple of our workmen would do aided by modern mechanical devices. Hopelessly archaic? Perhaps. But before passing judgment, let us first consider what to do with the 14 workmen before we discharge them! Let us not forget the classic reply of Gandhi in London during the Indian Conference, when approached by sales representatives of large machinery concerns and urged to modernize and mechanize Indian manufacture.

“As soon as you tell us what to do with the workmen that your machinery will displace,” he answered, “I will consider recommending it to my people.”

At present writing there is no record of any satisfactory reply.

Nevertheless, efficient Western methods are bound to be adopted even in China, the land of tradition, and when that day comes, what export business still remains to Western rubber manufacturers seems very likely to follow the setting sun.

No industrialist can visit the awakening East without qualms about the thesis that labor in America must receive more and more wages for less and less work. If persisted in, this theory can have only one result, the hermetical sealing up of our national economics, with incalculable hardship to our agricultural sections.

To the present writer, this theory seems doomed to failure. It is as though our workmen said to their kin in other lands, “The Biblical injunction, ‘Thou shalt live by the sweat of thy brow,’ is all very well for you, but we are through with all that sort of thing.”

Hong Kong

Although the International Settlement in Shanghai is still frequently called, by the older residents, the English Settlement, and even the casual visitor cannot fail to note that characteristic symbol of British rule, the presence of tall, supernally dignified policemen (in this case bearded Sikhs), it is not until the westward voyager reaches Hong Kong that he can observe British colonial rule in full blush, for Hong Kong is a Crown Colony, owned in fee simple, a small but intensely British spot on the map of Asia.

The harbor is one of the 3 most beautiful in the world. The city (Victoria) climbs from the water's edge to the top of a mountain, and after sundown gleams with a thousand lights upon the busy roadstead.

Hong Kong is but the largest of numerous islands, some of which have until recently served as pirate lairs. Perfect roads provide a pleasant means of encircling the island within a few hours by automobile, with time for tea and a swim at Repulse Bay.

With such a setting, and its location at the mouth of the Canton River, added to the security of British rule, it is small wonder that in Hong Kong the Chinese genius for business should blossom out and that one should find there a most interesting temple of the elastic art, a Chinese rubber shoe factory run on distinctly efficient lines. Modern in compounding and curing, using machinery wisely and not, as did we in all too many cases, with lavish disregard for flexibility of output, it is



Publishers' Photo Service, N. Y.

The Harbor at Hong Kong, China

not surprising that close to half a million pairs of "tennis shoes" should have been exported to Canada alone in 1933, each shoe proudly marked "British Made"!

Do you exclaim, "Built with sweated labor by workers living a wretched existence on rice?"

But no—these workers are well fed, sleek, clean, and happy. Rice for starch yes, but fish and fowl in profusion for protein, and for vitamins fruit and sunshine in lavish abundance.

The Oriental worker is temperamentally a philosopher. He does not require, for the peace of his soul, to be dashing nowhere at high speed in an automobile, nor does he demand the steady blare of radio or gramophone to deaden frazzled nerves. Food is plentiful and cheap. Cigarettes of good quality 2¢ for 20; bananas a dozen for a penny, and of a flavor unknown to us of northern climes.

"If winter comes?"

But there is no winter and so no care for coal and for heavy wraps. An airy shelter, built for a pittance, instead of the costly and tax-ridden houses of our glorious West. And now the West with all of the nearby sharpness of vision of the myope, and all of his distant blindness, having equipped the East with power and machinery, contemplates with fear and wonder the growing industrial monster. A momentary profit, and, in exchange, a generation of trouble and adjustment. Small wonder that Europeans are now regarded in the East as clever but not wise, as never seeing the woods for the trees.

There are various and conflicting views as to the outcome. The owners of Eastern agricultural estates seem quite content with the *status quo*, thinking only of continued low cost of production. The hard-pressed exporter of manufactured goods is all for a "raised standard of living" in the East, hoping for an eventual outlet. The probabilities are that the latter tendency is inevitable, but that not for a long time, if ever, will the present equilibrium be corrected. In the meantime international balance, or barter, is the formula most favored, but one the achievement of which will itself involve many painful adjustments.

The conclusion reached by the visitor is that the gigantic forces of applied science have been unleashed by the Western races without central planning and even

without thought of the social consequences either at home or in the densely populated East, a grave indictment, indeed, of our capitalist system. This writer shares the opinion of those who would even subject the exploitation of basic scientific and engineering discoveries to a measure of humanitarian censorship, in preference to the unrestricted motive of immediate profit.

With these thoughts in the back of your mind, you stroll through the Hong Kong rubber shoe plant, noting the contented faces of the "team-work" shoe makers, mostly women and girls, the efficient storage of aluminum lasts, the inexpensive but adequate racks, cars, and other gadgets of the oldest of the elastic arts. You smile with appreciation as you observe that the vulcanizing "heaters" instead of being "lagged" are fitted with roller bearings and that the starch-pasted tennis duck is being dried in the same heat which cures up the shoes! You are shown the power house where a Diesel engine, with crude oil, generates electrical power at one-third the prevailing municipal rate. Finally, your courteous Chinese manager-host remarks that with restriction now in effect he has already replaced a part of his crude rubber with carbon—and then it is time to go.

You sip your cup of green tea; your host insists upon your accepting several pairs of outing shoes (explaining that they cost very little!), bows you smilingly to your car, and in a few minutes you are on the Ferry to Kowloon where your liner is anchored, surrounded by swarms of sampans, coal junks, tugs, and launches. You leave Hong Kong, the beautiful, with the feeling that, even more than Shanghai, it will share in the almost feverish development of awakening China. Why more? Because instead of the battleships of 6 nations moored in the Whangpoo, within gunshot of the heart of the city, you see in Hong Kong Harbor no more evidence of might than you would see in the heart of London—and no less.

MOLDED ALL-RUBBER SHOE. A rubber shoe or similar hollow article can be formed by pouring a sensitive mixture containing an aqueous dispersion of rubber into a mold comprising a shell and a core. Heating the shell suitably causes the mixture to gel; then the article can be removed from the unheated core, dried, and subsequently vulcanized.

Splicing Submarine Cable Insulation

THE following extracts from a recently published article¹ describe the machine method employed for joining Paragutta insulation perfectly on submarine cables.

When Paragutta was developed, experimental joints were first made by standard manual methods using the new material, and it was found that perfect adhesion could not be obtained at the seam between the joining material and the core. It was also found that the conventional accumulation method of electrically testing the soundness of joints was not only unsatisfactory for detecting flaws, but was misleading and gave a false impression of security. Joints with poor adhesion at the seam may appear to be satisfactory according to this method of test for periods varying from a few months up to 2 years of immersion in water and may fail later. Indeed in the past the principal assurance of the soundness of joints rested on the individual ability and skill of the joiner himself.

In view of these uncertainties, it was decided to develop mechanical methods for forming Paragutta joints according to a more rigidly controlled procedure than had been customary. After considerable experiment, a machine,

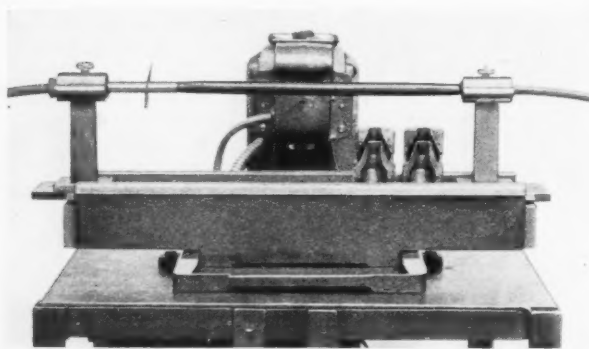


Fig. 1. The 2 Parts of the Extrusion Die Which Apply Paragutta to a Cable Joint Rest on Top of the Machine

shown in Figure 1, was developed which extrudes the plastic joining material over the conductor joint at a uniform rate and at a constant temperature and pressure and thus performs in an improved way the last and most critical operation in joining the insulation.

The application of this method is illustrated in Figure 2. Over the conductor joint A the insulation at one side is heated by steam and drawn down by hand B, and is overlapped by insulation drawn down from the other side C. The overlap is molded under heat and pressure, while wrapped in tinfoil D to prevent the insulation from sticking to the heated mold.

After chilling with ice water, the tinfoil is removed; the surface is filed to a symmetrical smooth contour, and the

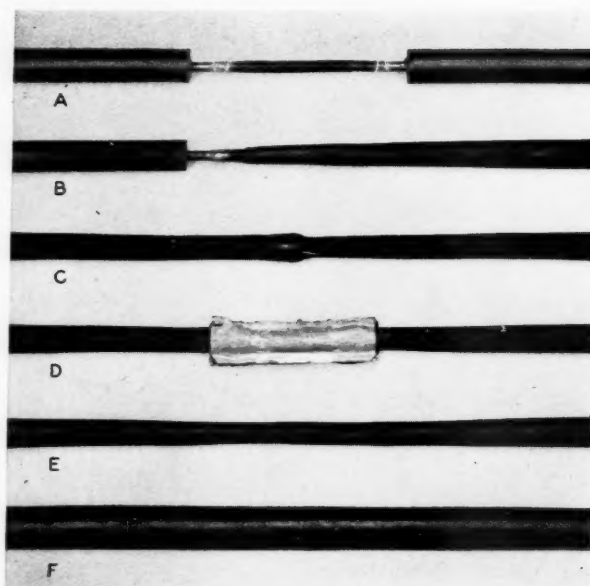


Fig. 2. Steps in Splicing Paragutta Insulation with the Aid of the Machine

molded joint E is placed in the extruding machine. The 2 parts of the extrusion die are clamped around the molded joint, and the plastic Paragutta is forced into the die while the joint is carried through the die at the rate of about one inch per minute. The resulting joint F, which is about 10 inches long, is hand polished and cooled, and the joiner's identification number is stamped thereon.

Tests on hundreds of experimental and manufactured joints so made have shown that the adhesion at the seam is equivalent in tensile strength and elongation to the homogeneous core material.

Distributors' Tire Stocks

(Continued from page 32)

uters is given in the following statement based on an assumption that there were 70,000 active independent tire dealers at the date of each of the surveys included, plus estimated total stocks held by mass distributors. This statement is to be regarded as a sample of how such estimates may be made, and indicative of the trend, rather than as necessarily accurate.

DISTRIBUTORS' INVENTORY OF AUTOMOBILE CASINGS
(Thousands of Casings)

	April, 1932	April, 1933	April, 1934
Independent dealers	4,634	4,536	5,579
Mass distributors	1,900	1,815	2,140
	6,534	6,351	7,719

¹"Joints in the Insulation of Submarine Cable." F. S. Malm, *Bell Laboratories Record*, July, 1934, pp. 327-29.

Rubber Paints

Joseph Rossman, Ph.D.

A LARGE number of United States patents have been granted for paints in which rubber is an ingredient. This type of paint is waterproof and is adapted for painting roofs, ship and boat bottoms, docks, wooden piers, metallic structures, and many other uses. Some of these paints also have acid resisting properties. The older rubber paint formulas usually dissolve the rubber in a solvent prior to adding the rubber to the other ingredients. A more recent patent, No. 1,736,404, to Hopkinson, for a cold-water paint discloses the use of rubber latex. An earlier patent, No. 1,492,027, to Gardner, likewise utilized latex.

An interesting series of patents have been recently issued to Charles M. Stine, assigned to E. I. du Pont de Nemours Co., Inc., for paints and varnishes containing rubber in solution. Chlorinated rubber and rubber isomers have also been suggested for use in paints.

The following are abstracts of United States patents for paints containing rubber in some form as one of the constituents:

1. Wiseman, 3,420, Jan. 31, 1844. A protective paint comprises carbon or graphite with rubber and shellac, together with acetate of lead, linseed oil, and spirits of turpentine.

2. Durant, 5,539, Apr. 25, 1848. A solution of rubber in chloroform is used as a coating or cement.

3. Burcher and Butcher, 18,183, Sept. 15, 1857. Eight to 12 pounds of crude rubber are dissolved in a gallon of linseed oil. This mix is put through a paint mill with any coloring matter.

4. Simons, 20,173, May 4, 1858. A paint for roofs contains coal tar, rubber dissolved in turpentine, boiled linseed oil, resin, and whitening.

5. Ellery and Ellery, 24,620, July 5, 1859. A waterproof paint is made as follows. Twelve pounds of rubber are dissolved in 6 gallons of linseed oil. Twelve pounds of gutta percha are dissolved in 12 gallons of linseed oil. These solutions are then mixed together, to which are added 3 gallons of shellac varnish, made by dissolving 6 pounds of gum-shellac in 3 gallons of alcohol. From $2\frac{1}{2}$ to $3\frac{1}{2}$ gallons of this mixture, according to the required thickness of the coating, are then mixed with 100 pounds of coloring matter, either Spanish brown, ocher, Venetian red, or other material, according to the color required, by passing the mixture through a paint mill in the ordinary manner. The paint is then ready for use.

6. Green, 26,267, Nov. 29, 1859. A paint for metals or wood consists of 6 ounces of emery, 4 ounces of pumice stone, 2 ounces of corundum, 2 ounces of Paris white, an ounce of lampblack, 2 ounces of magnesia, 3 ounces of rubber cement (consisting of a saturated solution of rubber in camphene), a pint of linseed oil, $\frac{1}{2}$ pint of turpentine, and one gill of japaner's varnish.

7. Fuller, 27,331, Feb. 28, 1860. A paint for bottoms of vessels, piles, or dry docks, is composed of sulphur, tar, rubber, verdigris, and oil.

8. Read and Galley, 53,336, Mar. 20, 1866. A composition for coating iron and wood consists of gutta percha, asphalt, and shellac.

9. Smith, 54,426, May 1, 1866. To make a paint for metal roofs put 60 pounds of asphalt and 5 pounds of gum-shellac into a kettle with about 2 gallons of coal tar and heat until thoroughly melted. Put 20 gallons of coal tar and 20 gallons of petroleum oil in another kettle and heat to about 95° ; then mix all the above and, when cooled, add 10 gallons of benzine and 5 pounds of cut rubber to the composition, stir, and mix.

10. Milks, 56,078, July 3, 1866. A coating for the bottom of vessels consists of coal tar, 26 gallons; benzine, $2\frac{1}{2}$ gallons; linseed oil, 2 gallons; asphalt, 7 pounds; gum-shellac, 7 pounds; pulverized soapstone, 8 pounds; plaster of Paris, 8 pounds; rubber, 1 pound; potash, 3 pounds.

11. Robinson, 60,557, Dec. 18, 1866. A paint comprises petroleum oil, 6 ounces; linseed oil, 2 ounces; rubber, $1/16$ -ounce; beeswax, $1/24$ -ounce; gutta percha, $1/16$ -ounce; sulphate of zinc, $1/20$ -ounce; sugar of lead, $1/32$ -ounce.

12. Roux, 63,654, Apr. 9, 1867. A paint for metal is made as follows. To a solution of 10 parts of rubber, 45 parts of turpentine, add sulphate of barytes, 60 parts; sublimed sulphur, 23 parts; white lead, 12 parts.

13. Cruickshank, 64,638, May 14, 1867. An anti-fouling paint consists of a solution of rubber in naphtha, to which are added boiled linseed oil, mercury, and lead compounds including a pigment.

14. Day and Bishop, 65,179, May 28, 1867. A coating for roofing is composed of 4 parts of cement, 2 parts ground clay, 2 parts fine sifted sand, 3 parts coal tar, and one part of rubber, and one part of resin and spirits of turpentine.

15. Smith, 68,661, Sept. 10, 1867. A paint consists of rosin, 300 pounds; Kentucky cement, 75 pounds; iron mineral (carbonate of iron) used for paints, 100 pounds; common glue, 6 pounds; rubber, 8 pounds; lead, 3 pounds; linseed oil, 3 gallons; benzine, 40 gallons; paraffin oil, 10 gallons; and gas-tar oil, 5 gallons.

16. Smith, 69,852, Oct. 15, 1867. Pulverize 6 parts of ground shale, $2\frac{1}{2}$ parts of carbonate of lead, 2 parts of oxide of iron, one part of oxide of lead, one part ground slate, and $\frac{1}{2}$ -part dissolved rubber; then grind together in linseed oil and bring to the proper consistency for use as a paint.

17. Dodge, 72,614, Dec. 24, 1867. A paint comprises raw linseed oil, 5 gallons; melted rosin, 15 gallons; spermaceti, one pound; rubber, dissolved in oil, 2 ounces; litharge or other drier, 3 pounds; sugar of lead, 2 ounces; gum-copal, one pound; and turpentine, 2 gallons.

18. Finch, 72,617, Dec. 24, 1867. A paint is composed of rubber, linseed oil, rosin, gum-shellac, and benzol.

19. Bishop, 73,288, Jan. 14, 1868. Latex is applied to cloth by a brush to waterproof it.

20. Hook, 75,915, Mar. 24, 1868. A marine paint consists of white lead, boiled linseed oil, and dissolved rubber.

21. Johns, 76,773 (reissue No. 5,950), Apr. 14, 1868.

A roof paint includes asbestos and rubber, with marble dust to give it body.

22. Trowbridge and Richardson, 77,418, Apr. 28, 1868. A roofing paint comprises rubber, rosin, petroleum, sulphur, and sand.

23. Moffitt, 84,702, Dec. 8, 1868. A paint contains benzine or naphtha, 96 parts; rubber, 4 parts; arsenic, 4 to 8 parts; and sufficient oil to give the required consistency.

24. Scoffern, 86,104, Jan. 19, 1869. A marine paint consists of rubber, linseed oil, and copperized ammonia.

25. Finley, 93,606, Aug. 10, 1869. An enamel composition is composed of rubber dissolved in turpentine, sulphur, and a pigment.

26. Lewis, 95,494, Oct. 5, 1869. A marine paint composed of a solution of rubber in tar naphtha contains benzole in combination with oxide of copper or other poisonous mineral substance slowly soluble in water.

27. Love, 99,332, Feb. 1, 1870. A paint consists of a pound rubber, 4 pounds gum-copal, 7 pounds gum-dammar, 6 pounds gum-thus, 2 gallons spirits of turpentine, and one gallon linseed oil.

28. Sherry, 109,769, Nov. 29, 1870. A wood filler includes linseed oil, rubber, raw umber, red lead, sugar of lead, and whiting.

29. Truscott, 113,368, Apr. 4, 1871. To make rubber paint take 6 pounds rubber, 3 pounds resin, 2 pounds beeswax, with 2 gallons linseed oil. Put into a kettle and, when sufficiently melted, add one pound quicklime, 18 gallons linseed oil, 10 gallons benzine, 10 gallons water, and 200 pounds of zinc or other pigment; then stir until thoroughly mixed.

30. Jordan, 114,017, Apr. 25, 1871. The basis of this paint consists of a solution of rubber, composed of pure rubber, $2\frac{1}{2}$ pounds; benzine, 40 gallons. To produce paint of any desired color there is added to this basis a mix as follows: to $\frac{3}{4}$ -gallon of solution of rubber as above, japan, one pint; coach varnish, $\frac{1}{2}$ -pint; dry paint, $2\frac{1}{2}$ pounds. When a black mixture is required, add from $\frac{1}{4}$ - to $\frac{1}{2}$ -pound of dry paint, instead of $2\frac{1}{2}$ pounds.

31. Finley, 116,825, July 11, 1871. A japan or lacquer is made from one pound rubber, one ounce to 16 ounces amber, one ounce to 12 ounces linseed oil or other drying oil. The amber is heated until fused; the oil is then added, and finally the rubber is dissolved therein. This composition is thinned to desired consistency by adding a solvent such as naphtha or carbon disulphide.

Another lacquer is produced from 20 to 30 pounds pyroxylin and 20 pounds rubber, masticated in a solvent such as naphtha.

32. Byrne, 121,330, Nov. 28, 1871. Paint is prepared as follows. To 6 pounds of pulverized carbonate of lime add one pint of linseed oil. This reduces the lime to the consistency of ordinary putty and forms the base for the paint. Then add 2 quarts of dissolved rubber, prepared by mixing the gum with benzine in the proportion of about 4 ounces of the former to 3 gallons of the latter. The whole is then allowed to stand and digest for about 12 days at about 70° F. It is then agitated until the mixture becomes homogeneous, when it is ready for use as a white paint. This is applied with a brush as usual.

33. Hook, 123,020, Jan. 23, 1872. A rubber varnish is made by dissolving 4 ounces of cut rubber in one gallon of boiled linseed oil.

34. Mathews, 125,972, Apr. 23, 1872. A rubber paint is made by dissolving rubber in a solvent and adding linseed oil and graphite to the desired consistency.

35. McCafferty, 137,854, Apr. 15, 1873. A prepared paint is formed of resin, oxide of manganese, linseed oil, refined petroleum oil, and rubber.

36. Finley, 146,387, Jan. 13, 1874. Rubber varnish is composed of baked or dehydrated rubber, sulphur, and benzine or other solvent.

37. Bageau, 151,822, June 9, 1874. A waterproofing compound for sizing, coating, and cementing wood, leather, and other articles is composed of rubber, gutta percha, resin, white lead, and a suitable solvent.

38. Robinson, 167,622, Sept. 14, 1875. A paint consists of cotton-seed and linseed oil and rubber.

39. Peart, 171,845, Jan. 4, 1876. A paint for outside work comprises 4 pounds zinc oxide, ground in linseed oil; 4 pounds lead carbonate, also ground in linseed oil; 4 ounces gutta percha dissolved in 12 ounces hot turpentine; $\frac{1}{2}$ -gallon boiled linseed oil; 3 ounces beeswax dissolved in 12 ounces of hot linseed oil; one ounce pearl ash dissolved in one pint of warm water.

40. Dana and Stuart, 182,175, Sept. 12, 1876. A roofing paint includes gutta percha, isinglass, chloroform, and rosin, japan, and asphalt varnish.

41. Jenney, 190,761, May 15, 1877. A rubber paint contains oxidized sludge oil and rubber.

42. Brown, 190,953, May 22, 1877. A waterproof paint consists of pine pitch, pine tar, iron ore, and gutta percha.

43. Bailey, 207,096, Aug. 20, 1878. A paint is composed of candle tar or sperm gum, petroleum, benzine, turpentine, or other suitable liquid hydrocarbon, gum-shellac, gutta percha, rubber, and litharge.

44. Elliot, 210,308, Nov. 26, 1878. Roofing paint consists of gasoline or coal tar, asphalt, oxide of iron, and rubber, either with or without powdered mineral matter.

45. Scott and McCumber, 212,058, Feb. 4, 1879. A rubber paint is composed of rubber, linseed oil, rosin, gum-shellac, gum-anime, gum-sandarac, benzole, naphtha, turpentine, sugar of lead, litharge, red lead, and gum-copal.

46. Hazelet, 216,850, June 24, 1879. A paint consists of gasoline or coal tar, asphaltum varnish, oxide of iron, rubber dissolved in benzine, resin (melted in small quantity of turpentine before mixing), all thoroughly mixed with linseed oil (raw or boiled) and Japan varnish.

47. Brown and Brown, 221,028, Oct. 28, 1879. A coating for metal to prevent rust and corrosion is composed of rubber, gum-kauri, gum-dammar, and wax, the whole dissolved in benzol.

48. Pearson, 234,425, Nov. 16, 1880. A roofing paint composition consists of yellow ochre, whiting, litharge, rubber, and linseed oil.

49. Mellick, 240,746, Apr. 26, 1881. A paint consists of coal tar, sulphuric acid, rubber, boiled linseed oil, benzine, oxide of iron, cement, and lime.

50. Pennoyer, 240,761, Apr. 26, 1881. A composition for roofs contains coal tar, rubber dissolved in naphtha, asphaltum or black varnish, bright varnish, and muriatic acid.

51. Fenner, 241,640, May 17, 1881. Paint consists of rubber, benzine, linseed oil, spirits of turpentine, water unslaked lime, sugar of lead, sulphate of zinc, white lead, and oxide of zinc.

52. Hawthorn and Hawthorn, 241,803, May 24, 1881. A paint for roofs, fences, and metallic surfaces comprises coal tar, asphaltum varnish, gutta percha, Japan varnish, spirits of turpentine, Venetian red, pulverized pumice stone, ground alum, dry sulphate of iron, air-slaked lime, and burnt umber.

53. Brockett, 251,676, Dec. 27, 1881. The paint is composed of pine tar, rosin oil, caoutchouc, gutta percha chips, gum-shellac, copal (oil) varnish, dammar varnish, and boiled linseed oil.

(To be continued)

Retreading

Its History and Development

D. C. McRoberts

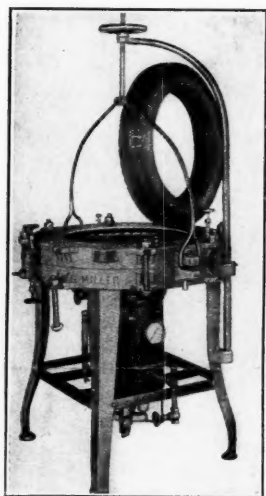


Fig. 1. Miller's Full Circle Retreader

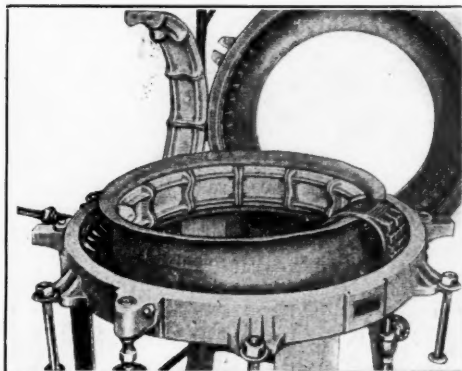


Fig. 2. Miller's Special Rim

With the advent of cord tires came much greater tire life, longer exposure to injury and wear, better cars, and higher registration. General tire repairing became a firmly

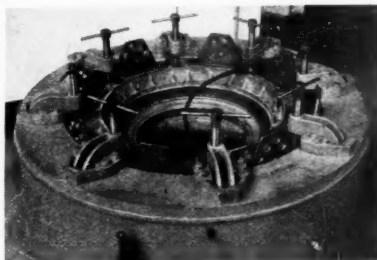


Fig. 3. Heintz Retreader

THE object of this article is to present a crystallized picture of the salient factors involved in the growth and practice of the retreading art. It is done with the hope of contributing something, at least suggestively, toward the stabilization of the business for the mutual benefit of tire manufacturers, equipment manufacturers, deserving retreaders, and a large percentage of motorists.

Technical concentration within the automotive and rubber industries has brought about a long and sweeping series of sensational developments addressed to the pleasure, comfort, convenience, and economy of the motoring public. Following such steps of progress, a vast field of laymen usually direct attention to auxiliary matters, many of which prove to be beneficial and necessary and result in the establishment of meritorious subsidiary enterprises. Such, briefly, was the inception and establishment of the retreading business.

History

During the era of fabric tires, with their balanced weaknesses of tread and carcass, mileage life was low, and the need of retreading non-existent; sectional repairing, however, began then.

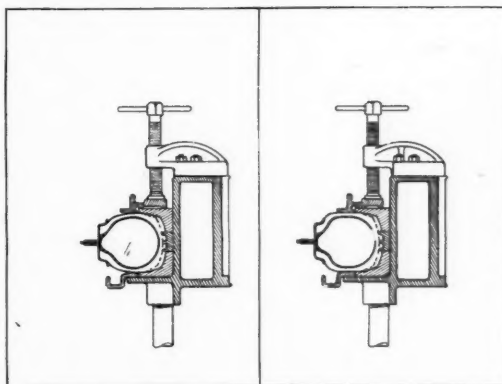
established, very remunerative, and rapidly growing business; while retreading found these conditions favorable to its inception.

In California, probably because of its advancement in paved roads and higher cost of tires at that distance from tire manufacturers, retreading grew rapidly to a business of fair proportions. It excelled other sections of the country in volume and quality of retreading done at that time and since, in spite of the tremendous universal growth in recent years.

It is a safe assumption that the business would have taken on even larger proportions at that time if curing equipment of today's perfection had been available then, and the principle of compounding tread stock with carbon black, for high wear resistance, had been delayed until the development and adoption of balloon tires.

The decade prior to the depression brought about a set of conditions that was destined to establish retreading as a sound, beneficial, remunerative business in all sections of this country; and, as would be expected, it grew accordingly.

Barring accident, the thin, flexible, scientifically constructed carcass of the balloon tire would doubly outwear the wide tough tread with its



Normal Tire—No Sidewall Bulge

Oversize Tire—Note Sidewall Bulge

Fig. 4. Cross-Sections—Heintz Mold



Fig. 5. Heintz Neutral Tread

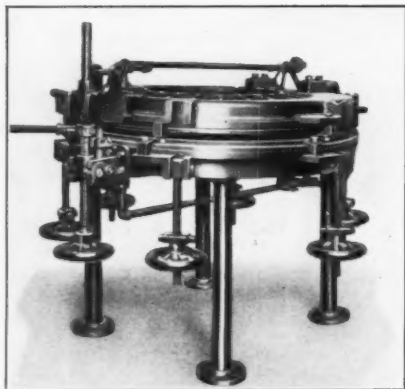


Fig. 6. Safety Retreader

pick-up of cars with the resultant higher slippage factors; and extensive installation of paved roads in all sections, conducive to more and harder use of cars.

An accelerated but orderly growth occurred during the earlier depression years due, first, to the availability of suitable curing equipment; and, second, to the ever-increasing need of motorists to economize. 1932 with its new commodity sales tax, 1933 with its blanket code regulating manufacturing laborers' hours and pay, and 1934 with its permanent code prohibiting the sale of seconds, combined forces to increase sharply the price of new tires and the demand for retreaded ones. The result of this set of conditions was an almost frenzied rush into the retreading business, filling it to, if not beyond, the point of saturation; and thus it stands today.

Development of Retreading

Prior to the balloon tire era little of note had been developed for retreading except the third circle mold, and this was not deserving of wholesome confidence owing to the heating of sidewalls, overcuring of tread laps, and the impossibility of producing a perfect non-skid design.

Prompted by the retreading opportunities growing from the public acceptance of balloon tires and coincidental developments, repair equipment and tire manufacturers, jointly and individually, directed concerted attention to perfecting both curing equipment and methods for high-grade retreading. Many problems of size combinations, equipment adjustability, and heat transmission and localization were encountered and in time effectively overcome. The several types of present-day full circle retreaders, simulating new tire curing equipment, were the result. By then, though, some years of profitable business had slipped away.

Simultaneously with the equipment development tire manufacturers were bringing into existence suitably shaped and compounded stocks for use in the new equipment. By extensive experimentation and testing they found thoroughly dependable methods of retreading.

squirming and scrubbing action against pavements. Aiding fast tread wear were front as well as rear wheel brakes; small diameter wheels with consequent reduction in tread circumference of tires; increase of power, speed, and

They installed well equipped and competently staffed schools for teaching the art and made them easily available to whoever wished to learn the business with fundamental soundness.

Faults of the Retreading Business

Undoubtedly the greatest threat to the perpetuity of the retreading business, for the reputable independent, is the existence, within its own ranks, of so many "gyps," veritable wolves in sheep's clothing that have no concern as to the value a customer receives for his money or any regard for the reputation of the tire manufacturer whose reliability they parasite for their own nefarious selfishness. With sweatshop labor and inferior materials they can and do make a worthless tire look as good as a reputable operator can cause a meritorious piece of merchandise to appear; but in so doing they destroy public confidence and drive the deserving operator to ruin.

Tire retreading will continue, undoubtedly, as long as the motoring public can benefit from it; but as a business for the reputable independent it is doomed unless purged of "gyps" from within. A separate retreading code, instead of the quasi-coverage in the new tire code, or organization of the scrupulous, with support of tire and equipment manufacturers, for the elimination of the unscrupulous may achieve the desired result. If this or some other effective plan is not undertaken at once, it seems inevitable that tire manufacturers will be compelled, for the preservation of their own reputation and for the protection of the interests of the tire using public, to take control of the situation for correction of its faults.

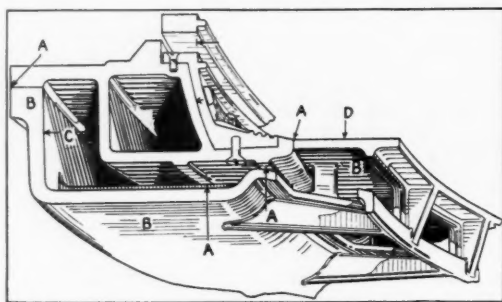


Fig. 7. Cross-Section—Bottom Half—Safety Retreader



Fig. 8. Safety Neutral Tread

Benefits of Retreading

Retreading has aided in keeping inestimable thousands of passenger cars, trucks, and busses on the road this year, for the convenience and livelihood of their operators, that under normal upkeep expense conditions would not have been registered at all. Many of these have been used cars, made economically purchasable by retreaded tires.

This condition will necessitate revising the usual formulae for prognosticating sales for those commodities forecasted on the basis of car registration, but it is better for business in general to have these cars running on reduced rations than not to have them running at all.

Regardless of how the busi-

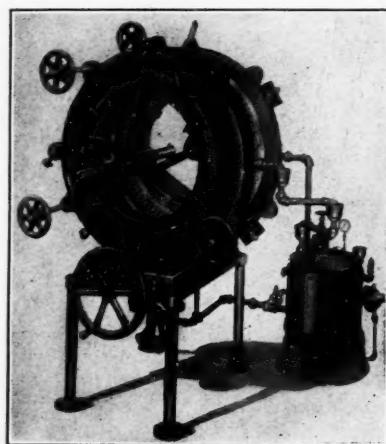


Fig. 9. Lodi Retreader

ness phase is eventually straightened out 3 conditions are certain to prevail: first, retreading will continue; second, full circle equipment will be utilized; and third, high-grade materials, methods, and business principles will be employed. It would seem, therefore, likely of some benefit to present a survey of shop equipment followed by a discussion of proven methods.

Full Circle Retreading Vulcanizers

There are about 85 different sizes of tires in more or less popular use. Each size varies in shape and dimensions, depending on make, grade, and stress in service.

Providing simple economical equipment with sufficient adjustability to cure retreaded tires without disruption from internal bag pressure or distortion from improper size and shape of mold constituted the equipment manufacturer's most difficult, time consuming, and costly problem. Others consisted of obtaining effective and uniform heat transmission to points desired and protection of the tire from it at other points, practical and distinctive neutral tread designs, and the means of obtaining adequate uniform internal pressure to assure perfect molding of the tread and positive adhesion of it to the carcass.

Figure 1 illustrates a horizontal watch-case retreader with each half steam-jacketed in the tread region. The steam cavity of the upper connects with the lower by means of special valves on opposite sides, which permits of quickly disengaging it from the heating system. An integrally attached swinging crane is provided to handle the top half of mold while changing heats.

All sizes and kinds of tires can be retreaded with the 5 models of this vulcanizer. Each model has one spacing ring for size adjustment. This versatility is due largely to the special aluminum segment rim with wide flap. Figure 2, being placed inside the tire beyond the beads, thus allowing them to float as occurs when a raw flat



Fig. 10. Lodi Variable Rim

band tire is first being shaped. In this manner a greater range of tire sizes can be cured in one size of mold than can be done when the beads are held in a stationary position on a regulation type of rim. If the manufacturer's heavy curing tube is used, the special flap can be eliminated, with consequent greater ease of application.

The type of vulcanizer shown in Figure 3 is one of 6 sizes that will, with a suitable complement of matrices, spacer and sidewall rings, accommodate all sizes of passenger,

truck bus balloon, and high pressure truck tires.

Either of the illustrations in Figure 4 shows in cross-section a tire in the mold, formed by the matrix halves with spacer between, assembled in proper curing position



Fig. 13. Recapping

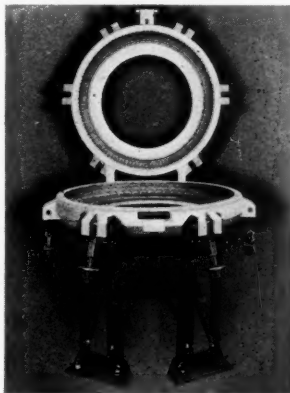


Fig. 12. Akron Aluminum Retreader

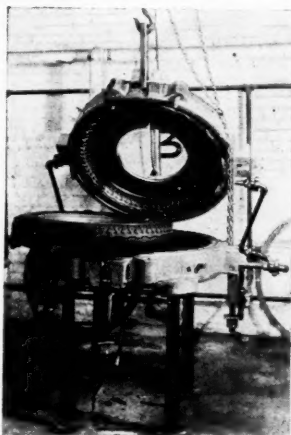


Fig. 11. Flynn & Collins Retreader

in the steel vulcanizer body. The vulcanizer casting has a flange extending radially inward, serving as a means by which it is supported in a horizontal position on legs, a place for holding the bottom sidewall ring, and a base upon which the matrix and spacer ring assembly lies in working position. Eight brackets, equally spaced about the circular top of the vulcanizer, are fitted with hand screws which carry the top sidewall rings and serve also as matrix clamps.

Besides affording additional adjustability by concentrating the fullness of oversize casings between itself and the rim (compare right and left diagrams of Figure 4), the sidewall rings serve as cold extensions and guards to prevent curing beyond and marking by the matrix edges.

A neutral tread design, such as shown in Figure 5, is recommended although other designs will be engraved into the matrices with the usual special considerations of cost and tire manufacturers' permission.

Another combination of well-thought-out principles is portrayed in Figure 6. The matrix holder is a horizontally imposed, adjustably hinged watch-case type, each half of which firmly holds a half of the interchangeable steam-jacketed curing matrix. To the front of each holder half is attached a 2-way screw fitted with a hand-operated reversible ratchet for easily and quickly opening and closing the vulcanizer to change heats.

Figure 7 shows in cross-section the bottom half assembly. The steam-jacketed matrix with inlaid aluminum segments forming the engraved tread molding and curing surface, fits into holder B with 4 machined bearing points A. Space C is reduced when matrices for larger tire sizes displace that shown in the diagram. The patented sidewall cooling and supporting device D protects the tire sides from overheating and matrix edge marking. Three sizes of holders, each with its set of matrices and spacing rings, complete the vulcanizer requirements for all popular tire sizes.

Three standard neutral tread designs come with this style of equipment. Each has a wide flat tread surface and sturdy shoulder blocks extending to and supporting the flexing region of the carcass. (See Figure 8.)

The vertical steam-jacketed halves of retreader shown in Figure 9 hold interchangeable matrices and integrally attached adjustable sidewall pressure plates. They open and close on slides fixed in the base, activated by a hand or motor driven quick acting screw.

In conjunction with various combinations of matrices, sidewall pressure plates, and adjustable rims, shown in Figure 10, vulcanizer models C and D cure all types and sizes of retreaded tires.

The manufacturer recommends his curing bag hot water circulating system to hasten the turnover of equipment on all sizes, but in addition to obtain a more perfect cure on the large truck sizes. A variety of neutral tread

designs, standard with this equipment, is strongly recommended, but special designs will be furnished under proper special arrangements.

Figure 11 portrays a horizontal watch-case type vulcanizer with steam-jacketed halves made in 2 styles. One is a single curing unit with 5 separate matrices and spacer rings; the other consists of 5 sizes of individual vulcanizers with engraved tread designs in the castings and suitable spacers included. Both styles accommodate the same range of tire sizes: namely, passengers up to 7.00 and trucks up to 32 x 6 heavy service. All this equipment is fitted with water-cooled side plates for preserving the sidewall. Bead curing rings can be substituted to recover the sidewall as well as the tread of a tire.

Among the claims made for the aluminum retreader shown in Figure 12 are: it cuts operating costs in half; heats to a curing temperature in 15 minutes; maintains an even temperature; produces a perfect cure; has no complicated mechanism; is light in weight and easy to operate; and each unit is complete in itself, not necessitating the use of shells or matrices.

Summary of Full Circle Vulcanizer Features

1. Provision for uniform heat delivered to tread region only.
2. Dissipation of heat from sidewall of tire.
3. Support of tire to prevent distortion during cure and marking of sidewall by matrix edge.
4. Adjustability of mold parts to accommodate various

sizes of tires, also various dimensions of each size.

5. Adaptability to recapping as well as retreading.
6. Ease and simplicity of operation.
7. Advocation of neutral tread designs.
8. Support of high-grade retreading.

Recapping

Recapping is a form of retreading in that it provides a new non-skid tread portion without removing the original worn tread. This practice has been quite generally in disfavor and has destroyed some confidence in retreading because until recently suitable curing equipment had never been available. Such equipment, as was used, overcured the underlying tread, the sidewall, and the carcass as well.

Cooperation of an equipment and a tire manufacturer has developed suitable curing equipment as well as the art of meritorious recapping, with the result that this form of retreading has been used in an ever-increasing number of shops in the last 3 years.

Figure 13 shows a tire before and after recapping so that a very good idea may be gained as to which region of the tread is affected. Very little heating surface is required to vulcanize this veneer-like topping. It is accomplished by a curing hoop, containing the required tread design on its inner surface, so constructed as to clamp in a properly fitting position completely around the circumference of the tire.

Rubber Traffic Markers

Allan Williams

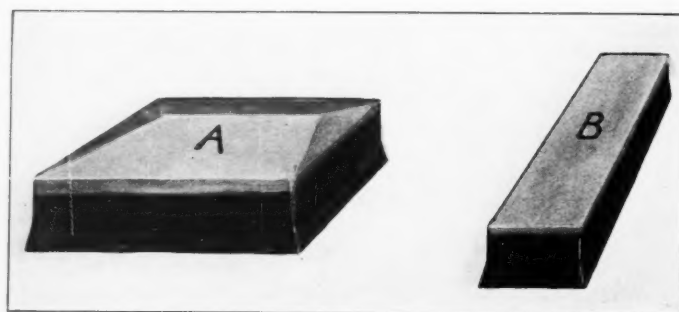


Fig. 1. Rubber Traffic Markers

RUBBER block road pavement can be conveniently and suitably marked for traffic guidance by molded rubber blocks of suitable form. Thus in Figure 1 block A is intended for marking the line separating traffic lanes and is laid in every other square. The block is beveled upward to the center from each edge after the manner of a hip roof. The intention of this form is to warn the driver by vibrating his car if he crosses the boundary of the lane in which he may be driving.

Block B is the safety zone

marker. It is set 8 feet from street intersections to show at what point vehicles should stop to permit passage of pedestrians across the street. It is used also around hydrants to warn against too close parking in case of fire. It can also be set to outline angle parking spaces to facilitate getting in and out at the curbing.

All of these blocks are set in a grill with watertight sealed joints so that neither frost nor a traction wave will remove them. They are adapted to be set in streets already paved with granite or wood blocks or asphalt paving without stopping traffic. Under such conditions they may be set with the aid of socket pockets.

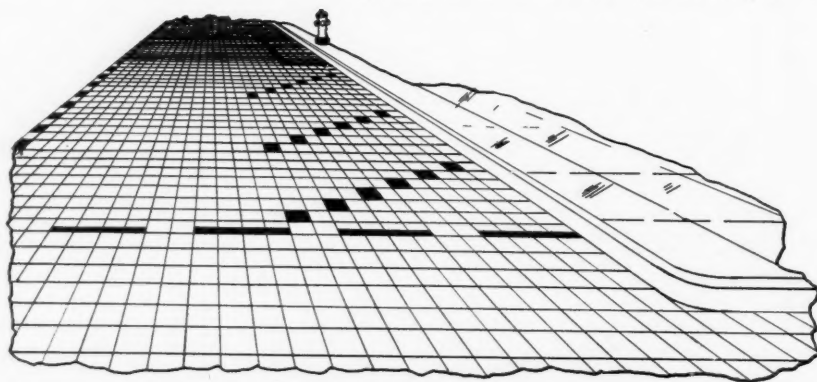


Fig. 2. Paved Street with Rubber Markers in Place

Annals of Rubber¹

Chronological Record of the Important Events in the History of Rubber

1781. BERNIARD, among his many discoveries, finds that "a solution of caoutchouc in oil of aspic, mixed with alcohol, throws down white flocks insoluble in hot water, which remain, at the surface of this last fluid, and become white and solid like wax by cooling."

1790. FOURCROY (Antoine François de), an eminent French chemist, member of the National Institute, publishes, in his remarkable "System of Chemical Knowledge," the result of his numerous experiments on the milk of the caoutchouc tree. He observes that: "Among vegetable matters, the oils are the only substances which have an evident action upon caoutchouc. Fixed oils dissolve it as they do melted wax, but it remains adhesive and viscid in the solutions. . . . By the mixture of fixed and volatile oils it is dissolved in order to form that fat and flexible varnish which can so advantageously be laid upon silk."

1791. PEAL (Samuel) takes out in England, May 2, the first known caoutchouc patent. It is for a "method of rendering perfectly water-proof all kinds of leather, cotton, linen and woollen cloths, etc." His coating consists of india rubber dissolved "by distillation or by infusion in a small quantity of turpentine spirits over a brisk fire, or by infusion in other spirits and in most kinds of oils; or of india rubber used in its native fluid state."

1797. JOHNSON (Henry) is granted, July 26, an English patent for rendering stuffs or cloth "impenetrable to wet, and more elastic and durable when made into garments." His method was to cover the stuff or cloth with a varnish made of india rubber "dissolved in spirits of turpentine and spirits of wine in equal quantities." The odor of the turpentine is taken off by oil of wormwood.

1798. HOWISON (James), a surgeon residing in Prince of Wales' Island, publishes a memoir in "Asiatic Researches," wherein he relates the discovery of the *urceola elastica*, which was afterward met with along the coasts of Sumatra and in other parts of Malaysia.

1800. Importation of the first bottle rubber from Brazil into the United States.

1803. A large factory is erected at Saint Denis, near Paris, to manufacture rubber elastic bands or braces.

1805. Specimens of the East India rubber plant, *ficus repens*, are first introduced in Great Britain.

1813. CLARK (John) obtains, July 14, an English patent for the manufacture of inflated beds, cushions, pillows "and other articles of the like kind," of which the inner casing is made impervious to air by coating it with the following solution: To one ounce of caoutchouc, add 8 ounces of turpentine spirits; let it stand 2 or 3 days in a closed glass receptacle; then throw the whole in an open vessel wherein it is to be boiled for several hours with about 70 ounces of linseed oil.

1813. HUMMEL (Jacob F.), of Philadelphia, obtains, April 29, a United States patent for a gum elastic varnish.

1819. HANCOCK (Thomas), of Stoke Newington,

commences his experiments with caoutchouc. His first attempts to dissolve it with oil of turpentine are unsuccessful. In the year following he succeeds in satisfactorily attaching to different articles the pieces cut off from the bottle-shaped masses, by sewing caoutchouc rings on the wristbands of gloves, or upon the tops of stockings, and attaching them likewise to belts, braces, boots, shoes, etc. He also invents a *masticator*, consisting of a spiked roller working inside of a spiked hollow cylinder, wherein are placed the lumps of caoutchouc to be combined into a plastic mass. The process was not patented; yet Mr. Hancock managed to keep secret to himself and to his many employes the workings of this "pickle" machine during the long period of 12 or 13 years.

1820. HANCOCK (Thomas) obtains his first English patent, April 29. This is for "an improvement in the application of a certain material to various articles of dress and other articles, that the same may be rendered more elastic." He attaches the pieces of caoutchouc in the manner already described under the 1819 date, not insisting "upon any particular mode of fastening. . . . for that may be varied as convenience may require." The full specification of this patent, as well as of all the other Hancock patents, will duly appear.

1820. NALDER (Francis), of London, is, on September 21, granted in France a 10 years' patent for process of manufacturing with caoutchouc, elastic threads for suspenders, gloves, garters, wigs, corsets, boots, shoes, and other articles of wearing apparel. Nowhere else does Nalder appear to have been granted protection until the year 1846.

1820. PARTON says (*North American Review*, July, 1885) that the first pair of rubber shoes imported from Para reached the United States during the present year. They were covered with gilding, resembling in shape the shoes of a Chinaman, and naturally attracted much attention.

1820. HOWE (John J.) obtains a United States patent for a mill, constructed with a rolling and slipping motion, which has continued to form the usual mode of preparing india rubber for use upon cloth or otherwise.

1821. SYME (James), a celebrated Scotch surgeon and physician, is represented as the first to discover an efficient means of waterproofing by means of caoutchouc, but his process does not appear to have been brought tangibly before the public.

1821. The Hancock *masticator*, originally worked by a winch, requiring the power of a man to manage it, and wherein, at first, hardly more than 2 ounces of caoutchouc could be treated at one time, now gives way to an iron machine worked by horse-power capable of treating 15 pounds of caoutchouc at the outset. This was ere long to be replaced by *masticators* capable of being charged with 180 to 200 pounds, and the resulting blocks of which, without joining, were 6 feet long, 12 or 13 inches wide, and about 7 inches thick.

(To be continued)

¹ Continued from INDIA RUBBER WORLD, July 1, 1934, p. 41.

EDITORIALS

The General Recession of Business

THE third quarter of the year has definitely become a period of general business recession, declares Col. Leonard P. Ayres, economist and vice president of the Cleveland Trust Co., in his monthly business bulletin.

"The first quarter," he said, "was a time of rapid business expansion, security advances, rising wages, and most hopeful declines in the volume of unemployment.

"There was reason to hope that expanding business was on its way to taking over from government most of the burden of relief.

"Then in the second quarter the advances became slower, and by June the volume of industrial production turned downward a little. In the third quarter the declines have become pronounced.

"The volume of industrial production has fallen by distinctly more than the normal seasonal percentage. Unemployment is growing, and the burden of public relief payments is increasing in even greater degree. . . .

"Probably the most important cause of the slowing down of business is the drought, which has become a truly serious calamity. Another factor of perhaps comparably great importance is the high cost of production resulting from the increased wages and shortened hours imposed by the codes.

"Perhaps the best evidence of the changed attitude of business is to be found in the iron and steel industry which expanded its operations, and made some good profits in the first half year.

"Its best customer is the automobile industry, which is holding up its production well and buying large tonnages of steel. Nevertheless, the output of the iron and steel industry has dropped to less than half of what it was only 7 or 8 weeks ago.

"The decline has been caused by a general shrinkage of demand from almost every other source than the automobile industry."

Status Quo of Small Business

THE address delivered by National Recovery Administrator Johnson at the code authorities' luncheon held recently in Chicago positively refuted the statement so often read in political speeches that the rubber codes were designed particularly to benefit the larger manufacturer. He said in part:

"The policy toward small enterprises is equally clear. It may be that in the end new mass methods of distribution may prevail to the practical elimination of small en-

terprises in this country. It may be that mail order houses and filling stations sales should run all tire dealers out, that chains should eliminate all independents in every line and that employment and independent earnings there should be reduced by $\frac{1}{3}$ but this is no time to permit such sudden and explosive change. With between 10 and 12 million people unemployed and general commerce and industry barely recovered from the worst mortality in history, this is not time to withdraw the actual and moral support of NRA from our convalescent structure. To the full extent of the powers of NRA we shall maintain the *status quo* of small enterprise in this country."

Old-Age Pensions

OLD-AGE pensions are a matter of growing importance to rubber manufacturers, who, as a class, were far in the lead of those providing old-age insurance for their employees, when the depression years made the continuance of pension insurance difficult in most cases and impossible in others. But business is improving, although slowly, and now is the time to consider anew the pension matter.

Based on the average life expectancy a pension of \$50 a month on retirement at 65 years of age represents a liability of \$7,500. The sooner such an insurance plan is started the lower the costs will be as good years will average with poor years.

The retirement age is usually 60 to 65 for males and 55 to 60 for females, and the pension amounts vary from $1\frac{1}{2}$ to 2% of the aggregate salary from the inception of the plan to the date of retirement. Regarding cost, the employer and the employee each usually contribute approximately 50% of the expense, which runs $2\frac{1}{2}$ to 5% of the payroll, depending on current and retirement age factors.

The pension plan thus provides the employees with a guaranteed income and gives them an opportunity to help themselves to economic independence.

DISTURBING AS THE RECENT LABOR TROUBLES HAVE been, they did not come as a surprise to any one who has studied our economic history. Each time the country has suffered a financial crisis strikes have marked the beginning of recovery. They may be regarded as a sure sign of an improvement in conditions. Although this depression is the worst one from which the country has suffered in years, the number of strikes is smaller than those attending our recoveries in the past. *Secretary of Labor Frances Perkins.*

What the Rubber Chemists Are Doing

A. C. S. Rubber Division Meeting

AT THE eighty-eighth meeting of the American Chemical Society to be held at Cleveland, O., Sept. 10-14, 1934, the following papers will be read before the division of rubber chemistry.

Abstracts

Forms of Rubber as Indicated by Temperature - Volume Relationship.

This paper describes measurements of the change of volume of rubber with change of temperature, which have been used as a means for determining the forms in which rubber may exist and ascertaining the conditions under which transition from one form to another may occur. This work is part of a study of the basic thermodynamic properties of rubber which is being conducted at the Cryogenic Laboratory of the National Bureau of Standards. In this study an attempt was first made to measure the heat capacity of rubber over a wide range of temperature, but under some circumstances anomalies due to change in phase were encountered which took place so slowly that it was impracticable to follow them through by calorimetric methods. These anomalies have been studied by measurement of the changes in volume or coefficient of expansion associated with them, it being possible to follow changes in volume over as long a period of time as desired. At temperatures at which rubber is relatively stiff and rigid, measurements of length have been used as an adjunct to the volume measurements. Norman Bekkedahl.

Heats of Combustion of Rubber and of Rubber-Sulphur Compounds. Measurements with a bomb calorimeter have been made of the heats of combustion of samples of rubber purified by various methods, and of compounds of rubber and sulphur containing up to 32% sulphur. In the calorimetric combustion experiments on rubber-sulphur compounds an amount of aqueous Na_2CO_3 or NaOH more than sufficient to react with the products of combustion containing sulphur was placed in the bomb before each experiment to obtain a definite final state for the system.

The average value obtained for the heat of combustion of ether-soluble rubber in gaseous oxygen to form gaseous carbon dioxide and liquid water at a temperature of 30°C . and a constant pressure of one atmosphere is 45,207 international joules per gram

(weight in vacuo). The estimated uncertainty of this value is 0.2%. The average values obtained for ether-insoluble and total rubber are lower by 0.9% and 0.4%, respectively, than the value for ether-soluble rubber. The samples of ether-insoluble and total rubber contained considerably more ash than those of ether-soluble rubber, and some evidence indicates that the ash does not represent the total inert impurity in the samples. It is possible that if the inert impurity could be determined with greater accuracy, the values for the heats of combustion of the different kinds of rubber would be very nearly the same.

The values obtained for the heats of combustion of compounds of rubber and sulphur in gaseous oxygen to form gaseous carbon dioxide, gaseous sulphur dioxide, and liquid water at a temperature of 30°C . and a constant pressure of one atmosphere may be represented by the empirical equation:

$$QC = 45200 - 37823 m$$

where QC is the heat of combustion in international joules of one gram (weight in vacuo) of a rubber-sulphur compound containing m gram of sulphur. The average difference between observed values of heat of combustion and values calculated from this equation is 0.1%, and the maximum difference is 0.4%.

From these data on the heats of combustion of rubber and of rubber-sulphur compounds, and the data of Eckman and Rossini on the heat of combustion of sulphur, the heat of combination of rubber with rhombic sulphur at a temperature of 30°C . and a constant pressure of one atmosphere, has been calculated to be 1,881 international joules per gram of sulphur, or 60.3 international kilojoules per mole of sulphur, independent of the percentage of sulphur in the compound. The estimated uncertainty of these values is 15%. R. S. Jessup and A. D. Cummings.

Studies in the Vulcanization of Rubber. VI. Thermochemistry. Investigators generally agree that there is a substantial evolution of heat during the vulcanization of ebonite. There are, however, differences of opinion regarding the thermal changes in the soft rubber range (0 to 6% sulphur), and past data are inconclusive. Preliminary data have been obtained indicating that a small but definite heat evolution occurs during vulcanization with 2% sulphur, and larger amounts are

evolved at higher percentages. The effect of an accelerator and the action of dinitrobenzene and selenium also were investigated. John T. Blake.

Thermal Properties of Rubber Compounds. II. Effect of Pigmentation on the Heat Generation of Rubber Compounds. In the present paper good correlation has been shown to exist between pendulum tests on rubber compounded with various types of zinc oxide and flexing life as measured by the Firestone flexometer. The effect of particle size of zinc oxide on the results obtained in both tests has been investigated and the optimum particle size found to vary greatly with changes in pigment loading. C. E. Barnett and W. C. Mathews.

New Laboratory Machine for Evaluating Breakdown Characteristics of Rubber Compounds. A new laboratory machine for testing rubber compounds is described. A specimen 1.5 inches in diameter and 1.5 inches long is placed between 2 parallel faces and loaded to produce either constant compression, or, with constant load, give variable compression in the specimen. The upper face is driven at 875 r.p.m. The lower face is rotated through the sample, but is carried on a track wherein its axis can be thrown off the axis of the upper face any desired amount, producing an angular flexing and distortion of the sample. The force required to maintain the axis differential between the 2 plates is definitely measured by a scale, and those flexing forces produced in the rubber test specimen can be followed throughout the test. Stocks may be compared under conditions of so-called "constant load" with variable deflection or under so-called "constant deflection" with variable load. The end point, or first indication of failure, is actually indicated by a scale. Results are given showing the effect on flexing forces due to change in volume loading and type of zinc oxide in the compound. Results are also given on commercial stocks showing excellent correlation with actual road tests on tire and carcass compounds. R. S. Havenhill and W. B. MacBride.

Surface Energy Relations between Pigment Materials and Rubber. Microscopical observations were made of the adhesion tension of rubber to pigment materials. The bond between carbon and rubber is relatively very strong in comparison with that of zinc oxide;

while other pigment materials gave intermediate results. Overcured rubber lowers the adhesion, and particle shape is also a contributing factor. Separation occurs at particle sizes coarser than those found in commercial pigments, indicating that the breaking of rubber occurs within itself rather than at pigment-rubber interfaces. Harlan A. Depew and M. K. Easley.

Dispersion of Channel Gas Black in Rubber. It has been found that channel gas black disperses with difficulty in rubber in which the acetone-extractable matter has been reduced to 0.5% or less. The addition of stearic acid to acetone-extracted rubber improved the gas black dispersion to a marked degree, thus demonstrating that stearic acid is a dispersing agent for black in rubber. The use of extracted rubber was made the basis for a method of testing the effect of various agents on the dispersion of gas black in rubber. In addition to stearic acid several other materials were found to improve the dispersion. Still others had no effect, and a few (among others, paraffin) seemed to lead to slightly worse dispersion than that of the control. The dispersive power of a given agent for channel gas black in rubber was found to bear but little relation to the deflocculating effect of this same agent on the black in a dipentene-gas black paste. C. R. Park and V. N. Morris.

Natural and Synthetic Rubber. XV. Oxygen in Rubber. Sol rubber is not a hydrocarbon, but a compound with an approximate formula $(C_5H_8)_n OH$, where n is larger than 500. Perhaps it is an alcohol. Three distinct types of oxygen linkages have been detected. A peroxide type of oxygen is present in degenerated rubber. Experimental details will cover combustion, methyl Grignard determination, and thionyl Grignard determination. Thomas Midgley, Jr., A. L. Henne, A. F. Shepard, and Mary W. Ranoll.

Some Relations between the Tear Resistance and the Structure of Rubber. A qualitative theory of the tearing of an ideal highly elastic isotropic medium is discussed, and the results predicted from the theory are compared with the tearing properties found in rubber. The discrepancies between the theory and the experiments have furnished some interesting details about the non-isotropic structures present in stretched rubber.

On stretching high gum stocks, they develop a "semi-racked" structure which has a finite rigidity to shearing stresses. This structure, which is largely responsible for the good tear of certain high gum stocks, is probably formed by the same crystals that produce the Joule heat and the X-ray fiber diffraction diagrams. The addition of pigments tends to destroy the semi-racked structure, thus decreasing the tear resistance.

A well-cured stock containing sufficient gas black develops "mechanical fibers" on stretching. The high tear resistance and knotty tears found in

gas black stocks are due to the weakness of the bonds between these mechanical fibers. Simple tests are described for studying the effect of temperature, state of cure, rate of stretching, etc., on the formation of these structures. W. F. Busse.

Method for Measuring the Pressure in a Rubber Extruding Machine. A method for measuring the pressure exerted by rubber on the walls of the die of a tubing machine is described. An extrusion plastometer was used in these pressure measurements, and the results obtained were employed in correlating the plastometer with a tube tubing machine. This was accomplished by determining the isothermal curve of efflux rate vs. pressure for the tubing machine and comparing with that for the extrusion plastometer. The measured values of the pressure at various speeds and temperatures of extrusion should be of value in the design of new types of extruding machines. J. H. Dillon and P. M. Torrance.

Effect of Manganese Salts on Vulcanized Rubber. The use of manganese salts in crude rubber manufacture gives a product which in gum stocks has lower tensile strength and poorer age resistance. This has been checked in Captax, diphenyl guanidine, and rubber-sulphur mixtures. In a tread stock the effect on tensile strength and flex life is not so marked, but the abrasion resistance of the stock tested was seriously impaired. In the crude state the rubber gradually becomes tacky and very weak. The use of manganese salts or permanganates in the manufacture of crude rubber should not be tolerated. George A. Sackett.

Value of Antioxidants in Counteracting the Detrimental Effects of Copper-Contaminated Rubber. The specific action of p-amidophenol in inhibiting the deterioration of soft vulcanized rubber contaminated with copper is shown. Thus the observations of Bierer and Davis are confirmed. The utilization of such rubber in soft rubber goods appears to be commercially feasible when p-amidophenol is used to counteract the effect of the copper. C. S. Powell and J. N. Street.

Colloidal Changes during Vulcanization of Rubber. Rubber lightly vulcanized with sulphur can be dissolved in benzene with the help of peptizing agents. The rubber may also be peptized by the action of accelerators in the absence of solvent. These materials are efficient peptizing agents only after rubber is attacked chemically. The action of soluble zinc compounds on peptized rubber sulphur causes a gelling action with great increase in tensile and modulus. Ira Williams.

Higher Alcohol in Rubber Compounding. Part II. Glycerol. The wide availability of glycerol, coupled with its trihydric structure, suggested its possible utility as a cure assistant, particularly in the presence of Mercapto and pine tar. The effect of direct addition of glycerol to a tread mixing was quite marked even without reduction in pine tar, being in this re-

spect superior to higher aliphatic alcohols. When used as partial replacement for pine tar, glycerol improved physical properties to an extent markedly greater than in the case of the aliphatic higher alcohols. The effect appeared to be enhanced when the glycerol was precooked with the accelerator and/or the pine tar. The above conclusions are based entirely on laboratory tests and require factory confirmation. W. B. Wiegand.

1935 Meetings

The American Chemical Society will hold its eighty-ninth meeting in New York, N. Y., the week of April 22, 1935, and its ninetieth meeting in San Francisco, Calif.

Rubber Bibliography

RUBBER ACID HOSE FOR PROCESS INDUSTRY SERVICE. A. D. MacLachlan and H. C. Klein, *Chem. & Met. Eng.*, July, 1934, pp. 365-67.

THE ACTION OF MINERAL OILS ON RUBBER. H. J. Stern and F. J. Glibbery, *India Rubber J.*, July 21, 1934, pp. 74-76.

AIR CONDITIONING FOR THE RUBBER INDUSTRY. H. Barron, *Rubber Age* (London), Aug., 1934, pp. 157-61.

RUBBER LATEX AND THE POSSIBILITIES OF ITS TECHNICAL APPLICATION. F. Kirchhof, *Chem.-Ztg.*, 58, 439-44 (1934).

PRESERVATION OF VULCANIZED RUBBER BY ANTIOXIDANTS. T. R. Dawson, *J. Res. Asso. Brit. Rubber Manufs.*, 2, 67-109 (1933).

NATURE OF ACTION OF ORGANIC ACCELERATORS FOR RUBBER VULCANIZATION. VIII. Special Properties of Organic Accelerators. IX. Action of Some Organic Bases on Rubber Sols. K. Shimada, *J. Soc. Chem. Ind., Japan*, 37, 126-27b; 127-28b; (1934).

CHEMICAL ANALYSIS OF VULCANIZED RUBBER. A. R. Matthis, *Chimie & industrie*, 31, Spec. No., 935-42 (1934).

SYNTHESIS OF ISOPRENE RUBBER FROM ACETYLENE. N. D. Zelinski, N. S. Kozlov, and R. S. Scher, *Bull. Acad. Sci. U. S. S. R.*, 8, 1, 141-51 (1934).

SOME OBSERVATIONS ON ACCELERATOR PRACTICE AND MODERN COMPOUNDING. R. C. Davies, *Trans. Inst. Rubber Ind.*, Apr., 1934, pp. 385-94.

SOME ASPECTS OF LATEX PROCESSES. P. Klein, *Trans. Inst. Rubber Ind.*, Apr., 1934, pp. 395-414.

RUBBER AND CANVAS CONVEYER BELTS. R. Huxley, *Trans. Inst. Rubber Ind.*, Apr., 1934, pp. 415-98.

UNSOLVED PROBLEMS OF THE ARTIFICIAL RESIN INDUSTRY. K. Brandenburger, *Kunststoffe*, July, 1934, pp. 168-72.

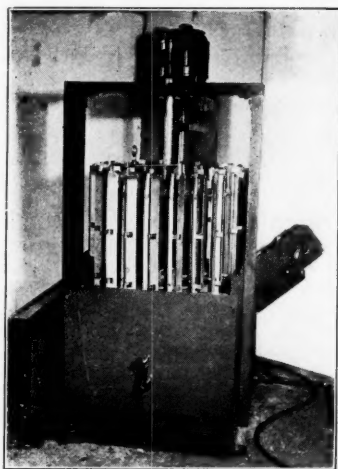
ECONOMIC IMPORTANCE OF RUBBER RECLAIM. P. Alexander, *Gummi-Ztg.*, June 22, 1934, pp. 618-19; June 29, pp. 642-43.

VISCOSITY OF LATEX. P. Bary, *Rev. gén. caoutchouc*, June, 1934, pp. 3-4.

EVOLUTION OF EQUIPMENT FOR RUBBER MANUFACTURES. F. Truchet, *Rev. gén. caoutchouc*, June, 1934, pp. 23-31. (To be continued.)

(Continued on page 56)

New Machines and Appliances



Utility Turret Stock Cutter

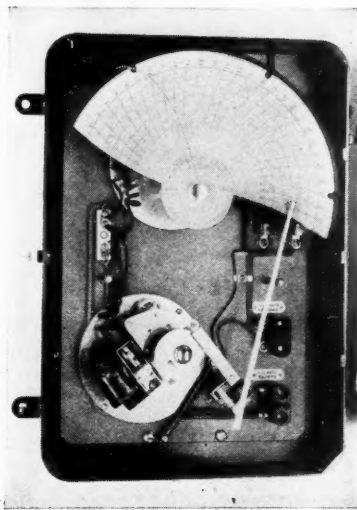
Stock Cutter

EFFICIENCY and economy of molded goods production are promoted by accurately sizing the raw stock to fit the mold cavity and fill it without excessive overflow. A new machine for measuring and slicing extruded stocks into accurate size for molding is here pictured. It has a turret head that holds 20 pieces of stock at one time, carrying them past a revolving wet blade. The turret is adjusted to all stations by a single crank. The range is from $\frac{1}{2}$ -inch to 3 inches diameter, and the time required to change is from 10 to 15 seconds. The adjustment of length of the cut pieces is also made by a crank and is graduated to $\frac{1}{16}$ -inch. The cuts are perfectly square and accurate, obviating the need of weighing the slugs before molding, and reducing mold overflow to a minimum. Utility Mfg. Co., Cudahy, Wis.

Spiral-Record Recorder

THE electrical operation recorder illustrated provides a long record on a fast-moving round chart. This instrument, instead of making one circular record, draws a spiral curve starting at the outer edge of the chart and gradually moving toward the center. This spiral record is accomplished by a telechron cam which continuously resets the record making movement.

This instrument is meeting great favor in time-study work since it provides an open record with the easy filing and ready reference characteristics of the round chart. One form is fitted with a chart driving clock, making one revolution per hour and with a separate telechron motor driven cam making one revolution in 8 hours. The



Bristol Spiral-Record Recorder

resulting record is a spiral curve covering 8 rotations of the chart and with approximate $\frac{1}{4}$ -inch spacing of the record line.

The mechanism which records the occurrence of an operation is a small electro-magnet that is energized when an external circuit is closed. The movement of this magnet actuates the pen arm and moves the inking pen approximately $\frac{1}{16}$ -inch.

The entire movement is housed in a moistureproof rectangular case. The Bristol Co., Waterbury, Conn.

Silverstreak Silent Chain

THE familiar link-belt silent chain is now resplendent in a new finish described by the trade mark name Silverstreak, descriptive of the appearance of the chain when in motion. This distinctive feature is due to bluing most of the chain and treating the wash-

ers and guide bars to give them a silvery appearance. The effect is to place the silvery parts on a dark blue background. No claims are made for improved efficiency, strength, or durability. Link-Belt Co., 910 So. Michigan Ave., Chicago, Ill.

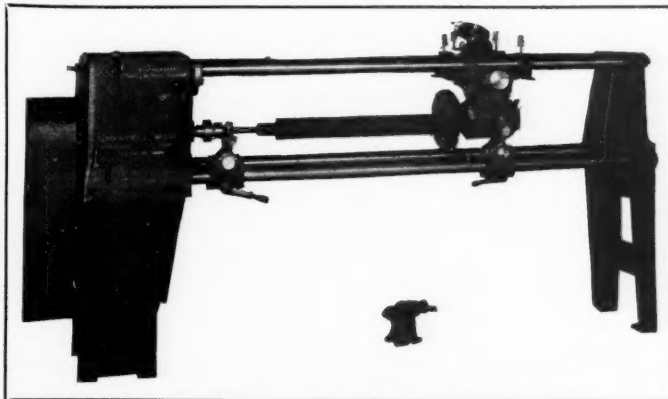
Roller and Tube Grinder

THIS machine has been designed to meet the growing need of the rubber industry for a production machine for the more rapid grinding of small cylindrical products such as tubes, wringer rollers, typewriter platens, printers' rollers, and miscellaneous small rollers.

To obtain maximum grinding efficiency and accuracy on work within its range, the machine has been equipped with an infinitely variable work speed control and 6 grinding feeds. The driving motor and work speed control are mounted under the gear box legs. The speed control wheel is behind the small round door shown on the front leg. The 2 feed change handles are on the front of the gear box. The mechanism and ball bearings enclosed in the gear box are automatically lubricated by an oil bath, and the machine has been made rugged and easy to operate.

The necessary equipment is supplied with the machine for grinding the work on either its journals or its centers. The grinding motor carriage and its slides are above the working point, thus insuring cleanliness and proper lubrication. The grinding motor carriage mechanism may be set so that one pass, 2 passes, or repeated passes of the grinding wheel across the face of the work may automatically be obtained.

The capacity of the grinder is $\frac{1}{2}$ -inch to 8 inches in diameter and 48 inches in length. Black Rock Mfg. Co., Bridgeport, Conn.



Black Rock Production Grinding Machine

Trimmer for Bicycle Tires

THE most recent application of machine trimming to molded rubber goods is shown in the illustration, which pictures the removal of bead rinds from a clincher bicycle tire. In the production of rubber articles the molds are made to separate entirely with respect to convenience of the work of molding and with little regard to overflow.

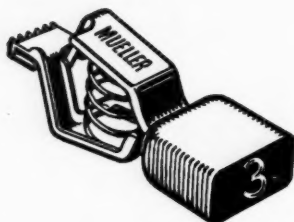
The illustration shows the overflow trimming position of a clincher bicycle tire in the latest machine for the purpose. The bead rinds are located on the inside edge of each bead, extending somewhat toward one other. For proper removal of these rinds the machine is supported on a projecting steel beam and is thus suspended beyond the line of the bench.

Under the machine 2 supporting rollers are provided, and directly in front of them is an inclined plate which serves to guide the tires into trimming position. In its inclined position the tire revolves freely, and the bead rinds enter the knives correctly for shearing. With one bead rind removed the tire is turned for removal of the other rind.

The machine is fully automatic, and the tires are entered and removed without stopping the machine. Its capacity is large, and the work turned out with neatness and dispatch. T. W. Morris, 6312 Winthrop Ave., Chicago, Ill.

Balancing Clips for Automobile Wheels

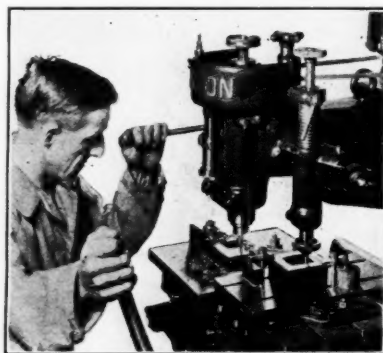
THE importance of perfect balance of automobile wheels, tires, and rims becomes increasingly important with the higher speeds of automobile travel because wheels out of balance cause



Mueller Wheel Balancing Clip

shimmy, tramp, hard steering, bearing strain, etc. A good wheel balancing outfit is therefore an essential part of every up-to-date shop. Whenever a wheel or tire is sold, or an old tire repaired, the unit should be balanced before being put on the car. This balancing is accomplished by fastening small metal castings of different weights in proper position on the wheel rim.

The illustration shows an approved form of clip for holding the weights. They can be readily snapped on and off during the balancing operation and easily slide around the rim with the tire inflated, thus greatly facilitating the ac-



Gorton Duplicator

curate balancing desired. Mueller Electric Co., 1583 E. 31st St., Cleveland, O.

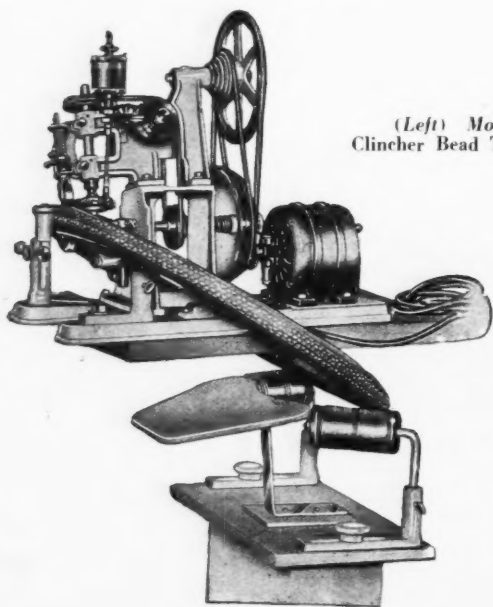
Duplicating Mill for Small Work

A NEW line of precision duplicating machines is here illustrated as applied for reproducing small dies used in die-castings, small drop forgings, and molds used in the rubber, glass, plastics, and similar industries. These duplicators have been designed primarily for small, accurate work of irregular shape. They will cut deep serpentine grooves, sharp shoulders, steep angles, and difficult shapes generally including lettering such as special trade marks. The extremely high spindle speeds (up to 12,000 r.p.m.) permit the use of cutters down to twenty-five or thirty thousandths diameter, for fine accurate work, and insure smooth finishes with a minimum of hand polishing. For roughing out dies the duplicator table can be locked and movement obtained with the milling machine table screws. For this work cutters up to 1/2-inch diameter shank can be utilized. George Gorton Machine Co., Racine, Wis.

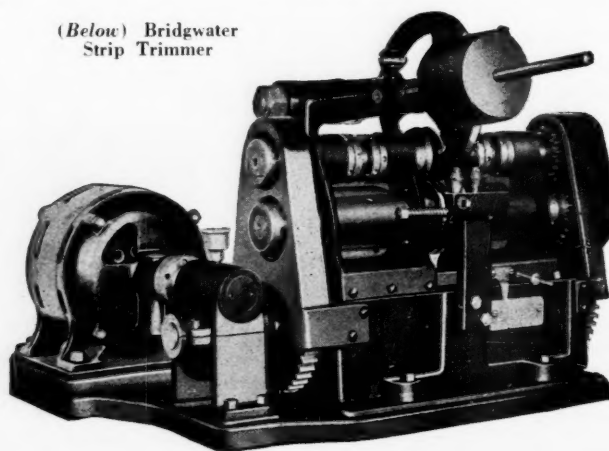
Linear Rubber Goods Trimmer

HIGH speed in trimming for all types of linear molded rubber goods, such as belting, tire flaps, brake lining, gaskets, weather strips, and other rubber strips in width from 1/4-inch to 6 inches, is accomplished by the motor driven machine shown in the accompanying illustration. It is modified from the regular patented-head bead trimming machine made by the same company and used by practically all tire manufacturers. The linear goods trimmer does neat close work at the rate of 70 feet per minute on strip goods.

Special knives, guides, and feed take-off fixtures are required as determined from a sample of the goods to be trimmed. It is thus often possible to handle several types of strips by employing interchangeable fixtures with a single machine. Bridgwater Machine Co., Akron, O.



(Left) Morris
Clincher Bead Trimmer



(Below) Bridgwater
Strip Trimmer

New Goods and Specialties



Daigger Flask Cap

Rubber Flask Cap

EVERY chemist will appreciate the convenience and the utility of the rubber cap device for covering the mouth of flasks, as illustrated. It is an all-rubber elastic cap with tab or visor that can be handily snapped over the mouth of a flask to keep the contents from contamination and loss by evaporation. These caps come in 3 sizes, the better to fit Florence and Erlenmeyer flasks of various capacities. A. Daigger & Co., 159 W. Kinzie St., Chicago, Ill.

Improved Stair Mat

A HOUSEWIFE'S suggestion for an improved rubber stair mat embodies not only protection against tread wear, but by continuation of the tread as a flap of ample dimensions protection is furnished the risers against damage that they would otherwise inevitably sustain if left unguarded. The front of the mat is molded to grip snugly over the edge of the stair tread. The flap is attached to the riser at 3 eyeleted points so located that merely lifting the mat from the edge of the tread will permit the woodwork to be cleaned easily and completely. Protection of the risers from becoming marred will indefinitely defer refinishing the stairs. Mrs. Mitchell Guertin, Waterville, Vt.

Portable Unit for Shower

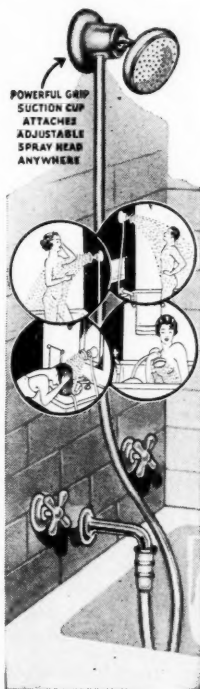
NOW on the market appears a new and portable shower unit that can be moved around different parts of the house. It is a simple affair and no installation is necessary since this shower has a powerful grip suction cup which will adhere to any smooth surface.

The spray head is adjustable and can be set to direct the water wherever it may be desired. Then the faucet connection has been designed to adjust itself to different types of faucets whether small, large, or medium, round or oval.

The adjustable head moves universally and is protected by a rubber bumper. It is doubly secured in the rubber socket of the suction cup with

a metal ring. The vacuum cup, of one-piece molded construction, will not leak, and is firmly affixed to 5 feet of highest quality Jumbo-type corrugated rubber tubing.

This shower can be taken into the bath, and the suction cup placed high on the wall to obtain a regular overhead shower bath. Again, it may be placed level with the shoulders or chest and not wet the new marcel—a feature that will appeal to practically every woman. If one wishes to wash or



Ever-Ready Shower

shampoo the hair, the unit may be attached to the wall or the mirror just above the wash bowl. There is no need in this way to turn water on and off and keep regulating temperature. It can even be used for the baby's bath by attaching low on the wall or within the tub itself. At the kitchen sink it saves much time when doing dishes. When it is wanted merely as a hand spray, it may be used without danger of splashing walls and floors since it holds steady. Besides it is fine in the basement for the children, for it saves cleaning up the bathroom when the youngsters come in from bathing on the beach or from playing in sand or dirt.

All metal parts of this little shower spray are of brass and chromium plate. The finest-grade live rubber with

smooth satin finish is used throughout. No brackets scratch the enamel, or screws mar the walls.

Altogether this unit weighs less than 1½ pounds and comes in blue, rose, red, and green. It is ideal for traveling since its size and shape permit it to be packed in only a few inches of luggage space. The Stanley-Oliver Mfg. Co., 564 W. Randolph St., Chicago, Ill.

Rubber Base in Enamel

PLIOLITE, the rubber base paint that resists salt, rust, acids, and alkalies, is an ingredient of the Goodyear Touch Up Enamel recently put on the market. This enamel flows smoothly and dries rapidly. The manufacturer claims that enamel paint added to the Pliolite base makes a perfect touch-up job which will be permanent regardless of heat, rain, polish, or any other condition to which it may be subjected. Touch Up Enamel comes in a 5-ounce lithographed can complete with a brush attached to the lid. Goodyear Tire & Rubber Co., Akron, O.

New Latex Cap

WILTEX caps should find a wide market. Made under exclusive processes of handling liquid latex, these caps are unusually strong, though extremely light in weight and highly impervious to tearing and snagging. Besides they are said to be more comfortable to wear as they do not bind and tire the head as heavier molded caps have a tendency to do.

Wiltex caps are packed for the trade in assorted popular colors in an attractive display carton showing the advantages of the cap and its many uses for diving, for housework, and in the shower. Each cap is in a Cellophane envelope with brightly illustrated stiffener. Wilson Rubber Co., Canton, O.



Wiltex Cap

Rubber Industry in America

NEW JERSEY

The continued drought in the West affected the rubber industry in New Jersey, by causing a decrease in orders for belting for farm machinery and mills where grain is ground. Manufacturers expect to raise prices of some products during the late fall.

Acme Rubber Mfg. Co., Trenton, reported business was much better during July than in June and that the prospects for fall and winter look promising. The drought lessened mechanical goods sales.

T. Ridgeway Leedom, of White Horse, cashier of the Jos. Stokes Rubber Co., Trenton, is recovering at St. Francis Hospital, Trenton, from a stomach condition. He has been seriously ill for some time.

Pierce-Roberts Rubber Co., Trenton, having received many new orders, hired a night shift in the press department.

Charles E. Stokes, Jr., vice president of the Home Rubber Co., Trenton, and Mrs. Stokes have been on a lengthy motor trip through New England.

Essex Rubber Co., Trenton, finds conditions unchanged, with bright prospects for the fall when prices will be materially increased.

Bruce Bedford, president of the Luzerne Rubber Co., Trenton, was elected president of the Trenton Saving Fund Society.

Whitehead Bros. Rubber Co., Trenton, experienced increased business for some products.

Bevis Longstreth, president of the Thiokol Corp., Yardville, vacationed along the New England Coast.

Puritan Rubber Co., Trenton, announced business is fairly good this season of the year.

Fred R. Sayen, of the Mercer Rubber Co., Hamilton Square, was chosen Mercer County director at Trenton by the ERA council.

Murray Rubber Co., Trenton, reports no change in tire production during the past months.

Thermoid Co., Trenton, announced the resignation of F. Robert Lee, vice president and sales manager. He has not revealed his plans for the future. Over 300 Thermoid employees recently held their annual outing. The company has formed a subsidiary, Thermoid Textile Co., Trenton, to make velvet carpeting.

Iroquois Rubber Co., 139 N. Clark St., Chicago, Ill., of which W. H. Colewell, is president, specializes in the manufacture of rubber floor coverings.

N. S. C. Notes

National Safety Council, 20 N. Wacker Dr., Chicago, Ill., in a recent survey reported that in 1933 the frequency of disabling injuries rose 11% and the severity 42% over 1932 in the rubber industry. The entire industry averaged 11.71 for frequency and 1.09 for severity in 1933, on the basis of records from 47 plants that worked over 116,000,000 man-hours during the year.

Rubber companies, in comparison with 29 other major industrial classifications, ranked twelfth in frequency and tenth in severity. The industry's frequency rate is 20% below the average of 14.56 for all industries, and the severity rate is 31% below the general average of 1.59. Plants manufacturing rubber footwear had the best safety records during 1933 in the rubber industry, averaging 6.56 for frequency and 0.90 for severity. Manufacturers of mechanical rubber goods, having a frequency rate of 12.56, excelled tire plants with a rate of 12.74. The tire plants, however, with a severity rate of 0.98, passed manufacturers of mechanical rubber goods, who averaged 1.65.

The following list contains companies making outstanding safety achievements during 1933. These companies are cited for one or more of the following accomplishments in their respective groups: (1) lowest 1933 frequency rate; (2) lowest 1933 severity rate; (3) greatest percentage improvement in frequency from 1931 to 1933; (4) greatest percentage improvement in severity from 1931 to 1933. For items 3 and 4 improvement must have occurred each year in both rates.

Tire Manufacturing: United States Rubber Co., Indianapolis, Ind., plant had the lowest 1933 frequency rate among large units—4.00; Goodyear Tire & Rubber Co. division in England had the lowest 1933 severity rate among large units—0.19; the New Toronto, Canada, plant worked more hours without a disabling injury than any other small unit with a perfect 1933 record—1,825,000 man-hours.

Mechanical Rubber Goods: U. S. Rubber sundries plant, Providence, R. I., had the lowest frequency rate among large units—2.31.

The twenty-third annual safety congress and exposition of the National Safety Council will be held October 1 to 5 in Cleveland, O. The following is the program of the Rubber Section, to be held at Carter Hotel, mezzanine floor, Wessex Room.

October 2: Resumé of Rubber Section Activities, General Chairman H. W. Low.

"Safety Progress in the Rubber Industry," (speaker to be announced).

"Safety in Rubber Mill and Calendar Operations," (15-minute talks): W. W. Stephens, general foreman, The Goodyear Tire & Rubber Co., Akron, O.; J. T. Kidney, manager, Goodyear's Employees' Service Division.

Address, F. D. Gable, relations manager, The General Tire & Rubber Co., Akron.

"Dust Problems in the Rubber Industry," (20-minute talks): Dr. J. Newton Shirley, Arrow Mutual Liability Insurance Co., Watertown, Mass.; Dr. W. S. Ash, plant physician, United States Tire Co., Detroit, Mich.

Data on the 1934 Contest, General Chairman Low.

Presentation of National Safety Council Trophies, by a N. S. C. officer.

October 3: "The Hazards of Rubber Cement Churn and Storage Rooms," E. W. Beck, supervisor of safety, United States Rubber Co., New York, N. Y.

"Safety Kinks in the Rubber Industry," H. A. Walker, Goodyear safety division.

"How Should the Foreman Train the Worker?" G. C. A. Hantelman, instructor, Goodyear Industrial University, Akron.

Election of officers.

Description of a Serious Accident—The Lesson Learned, (10-minute talks): A. M. Dietz, secretary, safety division, Pennsylvania Rubber Co. of America, Inc., Jeannette, Pa.; R. A. Bullock, employment manager, Corduroy Rubber Co., Grand Rapids, Mich.; R. W. Morse, safety department, The Firestone Tire & Rubber Co., Akron; D. G. Welch, safety engineer, Hewitt Rubber Corp., Buffalo, N. Y.

The American Tire Corp., Logansport, Ind., has taken over the bicycle equipment of the old Jonesboro plant and will make bicycle tires. Sam Bertram and R. W. Seiberling will head the company.

The Federal Grand Jury at Grand Rapids, Mich., has before it a case to determine whether or not the sale of rubber "joke money" is an indictable offense against the counterfeiting laws.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., moved its Chicago, Ill., district office to the Field Bldg., 135 So. LaSalle St. B. F. Bilsland is manager of the Chicago district.

EASTERN AND SOUTHERN

A communication from Pennsylvania reads that owing to anticipated labor disturbances in the producing fields rubber manufacturers gave shipping specifications for raw materials for June in quantities far in excess of their then-current requirements; thus shipments during July and early August reflected the reaction from the peak movement during June. Purchases of other supplies in June were slightly above the average monthly shipments for the first 6 months; while July showed some recession although shipments were still just a shade over the average for the first 6 months; but in the first half of August deliveries about equaled $\frac{1}{2}$ the June total. Other suppliers to the rubber industry state their sales in the field slowed down considerably.

Kelly-Springfield Tire Co., 405 Lexington Ave., New York, N. Y., according to President E. S. Burke has appointed Henry C. Swearingen general sales manager. He has been with the company for 17 years, 10 of which were as branch and division manager for the Midwest, with headquarters in Chicago, Ill., having come to that position from the Omaha territory.

Rubber in a Rail Truck

The lightweight, high-speed, multi-section cars now in experimental service on the lines of the Brooklyn-Manhattan Transit Co. are supported on trucks in which rubber is used to stop vibrations arising from contact between the wheels and the rails as well as those originating in the truck itself. The journal and bolster chafing plates are insulated by pads of rubber vulcanized as an integral sandwich.

Equipment of this kind, in order to be practical, must be durable, and for this reason alone the highest grade of low cold flow, non-oxidizing rubber was used. In no place is the rubber used at pressures exceeding 200 pounds per square inch. Rubber is amply protected against oil by the method of installation.

United States Tariff Commission, Washington, D. C., on August 7 reported that President Roosevelt approved its final findings in an investigation, for the purposes of section 337 of the Tariff Act of 1930, of alleged unfair methods of competition or unfair acts in the importation or sale of oxides of iron suitable for pigment purposes. At the same time he directed the Secretary of the Treasury to instruct customs officers to exclude from entry oxides of iron produced in the manner specified in the 2 patents for which the complainant is the sole and exclusive licensee to manufacture and to sell within that portion of the United States east of the States of Montana, Wyoming, Colorado, and Texas. The patents are the property of the West Coast Kalsomine Co., a California corporation. This, in effect, makes final the temporary order of exclusion, except under bond, issued on March 2, 1933, by the President. The Tariff Commission instituted the investigation on complaint of the Magnetic Pigment Co., New York, N. Y.

William W. Higgins, eastern district sales manager of United Carbon Co., Empire State Bldg., New York, N. Y., recently returned from a trip abroad, where he had called upon the company's agents and also visited engineers and technologists of leading rubber manufacturing firms.

Munds, Winslow & Potter, 40 Wall St., New York, N. Y., announced that G. H. Seybold, former general manager of United States Rubber Plantations, Inc., on August 1 became manager of the rubber department of the Wall St. firm.

The Intercontinental Rubber Co., Wilmington, Del., announces that in view of the improved prices for rubber and to secure some return from a considerable tonnage of mature guayule shrub that might otherwise be sacrificed, a 3 to 4 months' campaign of rubber production at the Salinas, Calif., factory has been planned, commencing the latter part of August. Practically all of the anticipated output has been

sold to rubber goods manufacturers in the United States.

Acorn Insulated Wire Co., 225 King St., Brooklyn, N. Y., makes insulated wire. W. R. Prosser is president, and E. George, purchasing agent.

Callaway Mills, LaGrange, Ga., recently completed a modern brick building to house a vocational textile school.

The United States Rubber Co. appointed Ralph C. Harden manager of packing sales in the mechanical goods division. His headquarters are at the company's main offices, 1790 Broadway, New York, N. Y. During the last 15 years Mr. Harden held several important positions with the Johns-Manville Sales Corp., the latest of which was western regional vice president of sales with headquarters in Chicago, Ill.

United States Rubber Products, Inc., New York, has increased its capital stock from \$25,000 to \$15,000,000. The company, a subsidiary of the U. S. Rubber, was formerly known as United States Rubber Products, Inc.

George E. Pell, broker handling crude rubber, plantations, Paras, liquid latex, and balata, maintains offices at 95 Front St., New York, N. Y.

Rubber Code News

Trade Practice Committee

The following alternates have been appointed to the trade practice complaints committee established under the code for the rubber tire manufacturing industry. W. C. Behoteguy, B. F. Goodrich Co., Akron, alternate for R. S. Wilson; E. S. Burke, Kelly-Springfield Tire Co., New York, alternate for L. R. Jackson; A. A. Garthwaite, Lee Tire & Rubber Co., Conshohocken, Pa., alternate for I. Eisbrough; J. P. Seiberling, Seiberling Rubber Co., Akron, alternate for J. W. Whitehead; and W. O. Rutherford, Pennsylvania Rubber Co., Jeanette, Pa., alternate for C. Borland.

No alternate was named for the committee chairman, A. L. Viles, general manager of the Rubber Manufacturers Association, Inc.

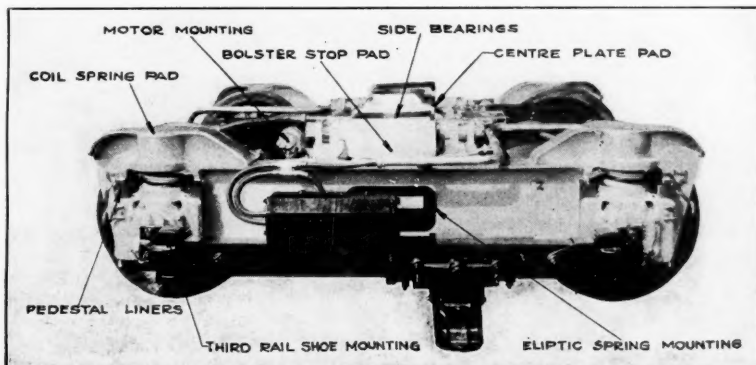
Hearing on Wage Provisions Postponed

Notice was given August 13 that public hearing on an application by M. S. Ferst, Ltd., Atlanta, Ga., for exemption from the minimum wage provisions of the rubber manufacturing industry code, scheduled for August 22, will be immediately recessed, to reconvene September 12, in Room 2062, Department of Commerce Bldg., Washington, D. C.

Industry Complying with Codes

Ample evidence that American industry is not only willing, but anxious, to comply with its codes is found in reports of NRA's Compliance Division. The latest report shows that State

(Continued on page 60)



Where Rubber Is Used in the Trucks of the B.M.T. Elevated Articulated Train

FINANCIAL

Company Reports

American Cyanamid Co., 30 Rockefeller Plaza, New York, N. Y., and subsidiaries as of May 31: total assets \$52,122,457, compared with \$52,056,691 on December 31, 1933; earned surplus, \$6,393,081, against \$6,013,812; paid-in and capital surplus, \$6,577,534, against \$6,495,893. Current assets, including \$3,864,395 cash and marketable securities, amounted to \$17,770,498, and current liabilities, \$3,816,749. This compares with cash and marketable securities of \$6,102,565, current assets of \$19,463,719, and current liabilities of \$4,361,640 on December 31, 1933.

Baldwin Rubber Co., Pontiac, Mich. Quarter ended March 31: net income after federal tax and other charges, \$58,574, equal after \$1.50 Class A dividend requirements to 40¢ a share on 100,770 Class B shares.

Fisk Rubber Corp., Chicopee Falls, Mass., and subsidiaries. Quarter ended June 30: net income after federal taxes and other charges, \$252,481, equal, after dividend requirements on 39,459, 6% preferred shares, to 43¢ a share on 447,356, \$1 par common shares outstanding on December 31, 1933. In preceding quarter net income was \$120,287, or 13¢ a common share, making net income for 6 months ended June 30 of \$372,768, or 57¢ a common share. In a separate account of "export accounts in liquidation" company reported net loss for quarter ended June 30 of \$11,929, against net loss in preceding quarter of \$1,031, making net loss for 6 months ended June 30 of \$12,960, which was transferred to reserve.

The old Fisk Rubber Co.'s bondholders and other creditors were notified August 21 that they will share in the allocation of \$778,200 assets of the old company. Bondholders who did not participate in a former partial distribution will get \$673.17 for each \$1,000 plus \$26.20 for each \$40 coupon, and note holders \$581.69 for each \$1,000. Bondholders who shared in the partial distribution will receive \$272.48 for each \$1,000 bond plus \$10.60 for each \$40 coupon, and note holders \$180.77 for each \$1,000. General creditors, all of whom have shared in the partial dividends, will be paid \$175.85 for each \$1,000 within 20 days.

The B. F. Goodrich Co., Akron, O., and subsidiaries. Six months ended June 30: net profit of \$1,486,956 after full

provision for depreciation, interest, and federal income tax. This includes a profit of \$479,547 arising from the sale of securities and a profit of \$22,149 from the purchase of the company's bonds and debentures, and is after absorbing a loss of \$93,058 in foreign exchange. This compares with a net profit for the first 6 months of 1933 amounting to \$870,577, including a profit of \$2,303,798 arising from the purchase of the company's bonds and debentures, and \$746,123 appreciation in foreign exchange. Sales of the company's products show a substantial increase over the corresponding period of 1933. Current assets as of June 30 amounted to \$57,370,532, and current liabilities \$9,556,666, a ratio of 6.00 to 1.

Goodyear Tire & Rubber Co., Akron, O., and subsidiaries. Six months ended June 30: net profit of \$2,617,197 after all charges including depreciation and minority interest. This compares with a loss in the first half of last year of \$738,036, before readjustment of foreign exchange reserve. After crediting \$1,298,987 readjustment of reserve for possible losses in foreign exchange previously provided, there was a profit in the first half of last year of \$560,951 carried to earned surplus.

Intercontinental Rubber Co., Wilmington, Del., and subsidiaries. Six months ended June 30: net loss, after taxes, interest, and depreciation, \$232,455, compared with a net loss of \$146,799 in same period last year.

Kelly-Springfield Tire Co., 405 Lexington Ave., New York, N. Y. Six months ended June 30: loss \$342,949 from operations after interest of \$78,464 on 6% notes, but before \$210,710 provision for depreciation, compared with loss from operations of \$573,838 in same period last year, after interest of \$80,377 on 6% notes, but before \$222,158 provision for depreciation and profit on purchase of 6% notes. Since June 30 all outstanding bank loans have been paid. Total current assets now amount to \$6,758,242, with total current liabilities at \$1,117,597.

Monsanto Chemical Co., St. Louis, Mo. Second quarter, 1934: net earnings of \$704,918, approximately 81½¢ a share on the 864,000 shares outstanding. Net earnings for the first 6 months of 1934 were \$1,379,035, approximately \$1.59½ a share. Giving retroactive effect to the 100% stock distribution this

year, comparable earnings for the first half of 1933 were 98¢ a share. The directors declared the regular quarterly dividend of 25¢ per share, payable September 15, 1934, to all stockholders of record at the close of business on August 25, 1934.

New Jersey Zinc Co., 160 Front St., New York, N. Y. Six months ended June 30: net income after taxes, depreciation, depletion, contingencies, and other charges, \$2,086,511, equal to \$1.06 a share on 1,963,264, \$25 par shares, compared with \$1,370,380, or 70¢ a share, in the first half of 1933.

Quarter ended June 30: net income, \$994,304, or 51¢ a share, compared with \$1,092,207, or 55¢ a share, in the preceding quarter and \$933,002, or 48¢ a share, in second quarter a year ago.

Raybestos-Manhattan, Inc., Bridgeport, Conn. Six months ended June 30: net income \$719,831.98, equivalent to \$1.12 per share, comparing with net income of \$229,396.59, or 36¢ per share, during the same period in 1933. The balance sheet at June 30, 1934, revealed total assets amounting to \$16,525,114.03, including \$8,001,628.09 of current assets, equivalent to 11 times the current liabilities of \$715,026.73 at the close of the quarter. The company had no banking or funded debt, or other capital obligations. The book value of its 642,900 shares of stock outstanding, after deducting the 33,112 shares held in the treasury, was \$23.32 per share. The net current assets represented \$11.33 per share, of which cash and marketable securities amounted to \$4.26 per share.

United Carbon Co., Charleston, W. Va., and subsidiaries. Six months ended June 30: net profit after depreciation, depletion, federal taxes, and other charges, \$670,373, equal, after dividend requirements on 7% preferred stock which was called for retirement on July 1, to \$1.65 a share on 370,127 no-par common shares, against \$200,731, or 64¢ a share, the year before. Quarter ended June 30: net profit, \$360,510, or 90¢ a common share, compared with \$309,863, or 76¢ a share, in the previous quarter, and \$171,760, or 38¢ a share, in the June quarter of a year ago. A quarterly dividend of 60¢ a share was declared on the common stock, payable October 1 to stockholders of record September 15.

United States Rubber Co., 1790 Broadway, New York, N. Y. Six months ended June 30: profit from operations, after interest on funded indebtedness of \$1,861,511, but before provision for depreciation, \$3,018,948. Provision for depreciation was \$2,992,360, and the net increase in surplus account amounted to \$26,588. The plantation had a profit of approximately \$390,000 after all charges, including provision for depreciation and amortization amounting to \$812,000. These results have not been included in the statement. In the

Dividends Declared

Company	Stock	Rate	Payable	Stock of Record
Firestone Tire & Rubber Co.	6% Cum. Pfd.	\$1.50 q.	Sept. 1	Aug. 15
Gates Rubber Co.	Pfd.	\$1.75 q.	Sept. 1	Aug. 16
Goodyear Tire & Rubber Co.	Cum.			
Norwalk Tire & Rubber Co.	1st Pfd.	\$1.00	Oct. 1	Sept. 1
Raybestos-Manhattan, Inc.	Pfd.	\$0.87½ q.	Oct. 1	Sept. 21
Tyer Rubber Co.	Com.	\$0.25	Sept. 14	Aug. 31
United Elastic Corp.	6% Pfd.	\$1.50 q.	Aug. 10	
	Com.	\$0.10 q.	Sept. 24	Sept. 6

first 6 months of 1933, the net loss was \$3,419,304. Net sales for the six months ended June 30, 1934, for U. S. Rubber totaled \$52,495,958, against \$36,494,680 for the first half of 1933.

New Incorporations

Alexander Rubber Co., 143 S. Broad St., Trenton, N. J. Capital 2,500 shares, no par value. H. and I. Spiegel and M. Cohn, all of Trenton. To manufacture rubber products.

Caouchouc Laboratories, Inc., (N. Y.). Capital 200 shares preferred, 200 shares common, no par value. Menkes, Ferguson & Hills, 44 Wall St., New York, N. Y. Rubber and gutta percha.

Elastic Fabrics, Inc., Providence, R. I. Capital \$50,000, divided into 500 shares, par value \$100. E. A. Jenckes, M. Swan, and F. O'Connell, all of Providence. Manufacturing and dealing in elastic braid and webbing.

General Insulated Wire Co., Providence, R. I. R. W. Tillinghast, Johnston; D. H. Morrissey, Barrington; and L. E. Seymour, Providence, all in R. I. Manufacture and deal in wire and braids and kindred products.

Henry F. Goepfert, Inc., 60 Park Pl., Newark, N. J. Capital \$100,000. W. Safirstein, J. Shoenholz, and R. Stahl, all of Newark. Manufacture tires, tubes, and other rubber goods.

MacEwan Rubber Co., Inc., 125 Broad St., Elizabeth, N. J. Capital 1,000 shares, no par value. J. A. MacEwan, 90 Maple Pl., Keyport; B. Rabkin, 1228 Victor St., Union; and H. Schinkowitz, 348 Holly Rd., West Orange, all in N. J. Manufacture all kinds of rubber.

Span Tire & Rubber Co., 216 W. Main St., Somerville, N. J. Capital 25 shares, no par value. W., R., P., and A. Span, all of 215 E. High St., Somerville. Manufacture tires and other rubber products.

"Thinner" Football

PROMPTED by the desire of many schools and colleges for a "thinner" ball, new specifications for the official football, reducing the circumference, short axis, will be in effect for the 1934 season. The new rule reads:

"The ball shall be made of pebble grained leather (natural tanned color) without corrugation of any kind, enclosing a rubber bladder. It shall be inflated with a pressure of not less than 12½ pounds, nor more than 13½ pounds and shall have the shape of a prolate spheroid—the entire surface to be convex.

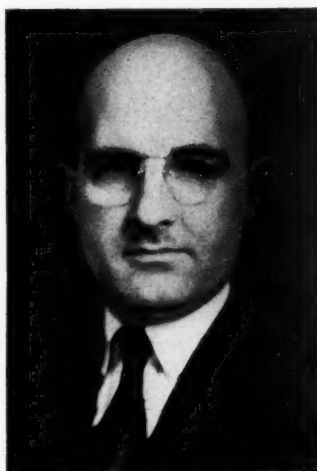
"The circumference, long axis, shall measure not less than 28 inches, nor more than 28½ inches; short axis, not less than 21¼ inches, nor more than 21½ inches; the length of the long axis shall measure not less than 11 inches, nor more than 11¼ inches. The weight of the ball shall be from 14 ounces to 15 ounces."

OBITUARY

Rubber Chemist

After having suffered from heart trouble for several months Dr. Hans Richard Haertel passed away at his home in Wrentham, Mass., on July 19. He was born at Jena, Germany, February 7, 1876, and received his education, including his Ph.D. degree, from German universities.

While a young man, working for a Dutch concern in Java, Mr. Haertel became interested in the manufacture of rubber. When he came to the United States in 1908, he sought employment in the rubber industry. For some years he was a chemist at the Rome Wire Co., Rome, N. Y. Later he became chief chemist for the Appleton Rubber Co., Franklin, Mass. Then for several years he acted as a consulting rubber chemist at Wrentham. His last connection was as factory manager of the F. S. Carr Co., Framingham, Mass. Mr. Haertel also had numerous patents to his credit relating to rubber compounds and manufacture.



H. H. Hanna

Goodyear Executive

A SUDDEN heart attack caused the death, on August 12, of Hubert H. Hanna, assistant treasurer of the Goodyear Tire & Rubber Co., Akron, O., since February, 1929. He had been with Goodyear 15 years, all of which were in the treasurer's office except for 7 months, October, 1927, to May, 1928, when he was financial director for Goodyear Tire & Rubber, Ltd., Australia. In 1918 Mr. Hanna was an instructor in the field gunnery motor transportation department, artillery, Louisville, Ky.

The deceased was born at Newcastle, Ind., September 10, 1891. Indiana State University is his Alma Mater. Mr. Hanna also belonged to the Portage Country Club.

He leaves his widow, his father, a brother, and a sister.

Funeral services were held August 15. Burial was in Rose Hill Cemetery.

Former U. S. Rubber Man

A RETIRED controller and vice president of the United States Rubber Co., 1790 Broadway, New York, N. Y., Richard Franklin Spencer, died at his home in New York on August 9. For many years Mr. Spencer, who was born December 14, 1853, at Warsaw, Mo., was treasurer of the Hamilton Brown Shoe Co., St. Louis, Mo. He came to New York June, 1910, as controller for U. S. Rubber, later becoming a vice president and finally retiring in 1924.

The deceased had been president of the Western Association of Shoe Wholesalers and of the National Boot & Shoe Association as well as a member of the Union League, Lotus, and St. Louis clubs.

He leaves his widow, a son, and 2 daughters.

The funeral was held August 10.

Clothing Manufacturer

ON July 30 at his home in Poughkeepsie, N. Y., after a long illness died Clarence Kenyon, 88, one-time head of the C. Kenyon Co., Brooklyn, N. Y., manufacturer of clothing, including raincoats, which later branched out and made tires. Mr. Kenyon was a native of Brooklyn, where 40 years ago he revolutionized the manufacture of clothing by consolidating the cutting and the sewing of garments under one roof. In 1904 the deceased retired from the firm which he had incorporated in 1884. By then his 3 sons, Harry L., Clarence, Jr., and George, had actively entered the business. The last 2 more recently have been associated with the Vulcan Proofing Co., Brooklyn.

Also surviving the senior Mr. Kenyon are a daughter, a sister, 4 grandchildren, and 3 great-grandchildren.

Funeral services were conducted on August 1. Burial was in Greenwood Cemetery, Brooklyn.

Herman Matthias, salesman for W. H. Salisbury & Co., Chicago, Ill., for 45 years, died August 20 after a long illness.

The Canadian Mechanical Rubber Corp., Orilla, Ont., Canada, makes rubber auto mats, auto rubber, and batteries. The company is headed by Clyde Arnold and Herman Koelliker.

Gutta Percha & Rubber, Ltd., Toronto, Ont., Canada. On July 28 over 1,400 employees and their families held their annual picnic, which included a full program of sports, entertainment, dancing, and refreshments. Prizes were distributed by C. S. Band, the company vice president and chairman of the board.

NEW ENGLAND

From Boston, Mass., comes a report that most of the industry's customers are covered on raw materials for a year, with their warehouses full. Even their customers, it seems, stocked up ahead in fear of rising prices. Higher prices, the result of increased costs, have also checked business in this district. Despite this almost stagnant condition many business men feel somewhat optimistic over the coming fall and winter business.

A steady increase in crude rubber receipts in Boston is reported by the Maritime Association from statistics given it by the Rubber Manufacturers Association, Inc. In July 3,190 long tons of crude were received here in 12 steamers from 13 ports, chiefly in the Far East. This figure compares with 1,826 long tons at Baltimore and 556 at Philadelphia, Boston being second only to New York. Receipts during the 7 months of 1934 totaled 24,442 long tons.

It is said that except, perhaps, for some departments or factories producing entirely seasonal products, the rubber industry in Rhode Island is operating practically a full single shift. Although the end of the summer sports equipment manufacturing period is at hand, the trade has held up well and somewhat beyond the normal period of letdown experienced in other years. Tennis shoe and golf products appear to have led the trade, but generally the pace is slower in the output of seasonal than of so-called staple sundries. Employment has remained at a generally satisfactory level the past 2 or 3 months, and if the present movement toward fairly good-sized orders materializes as expected, manufacturers say that there will not only be no letdown in the employment total, but there also may be some increase, particularly through the medium of man-hours, as deliveries are rushed through to wholesalers with the opening of the fall season.

Manufacturers of sundries here, who normally experience their best business period during the summer when hospital and surgical equipment is being bought for the ensuing year, indicate that trade is good and that enough potential orders are in sight to warrant the expectation that present factory

schedules will be continued for probably several more weeks.

The unused space in the extensive plant once fully occupied by the National India Rubber Co., Bristol, R. I., is being gradually filled with manufacturing concerns, and buildings long vacant are again giving signs of industrial life. On the first floor of the former rubber footwear division of the National plant, the Bristol Mfg. Co., organized under the leadership of Maurice C. Smith, Jr., formerly factory manager of the National rubber footwear division, is progressing rapidly. Machinery installations have practically all been made, and production is under way. Within a few months, states Mr. Smith, the plant will be running to capacity. This factory will make shoes of rubber and fabric.

At the easterly end of the National plant the Carr Mfg. Corp., which makes rubber thread, is doing an increasing business. The factory, housed in a building especially erected for it, is equipped with the most modern machinery. Manager A. H. Carr was formerly factory manager for the United States Rubber Co. at its Valley St. plant in Providence. The above concerns are utilizing many of the operatives who formerly worked in the rubber shoe industry at the National plant, who have been out of steady employment since the National rubber footwear division closed in 1931.

Rubber Mounted Bicycles

The newest feature in bicycle construction is the use of rubber mountings applied at salient points to deaden sounds and prevent rattling when the vehicle is subjected to long, hard usage. These mountings are strips and washers located at a number of points where shocks and wear would otherwise produce discomfort and noise.

Referring to the illustration, the gum strips *A*, *B*, and *C* are about $\frac{1}{8}$ -inch thick and apply at the following locations. The front end of the luggage carrier is cushioned by *A*; the battery tank front clip by *B*; the brace for the rear wheel guard by *C*. The front and rear axle washers are of metal, to which cloth insertion rubber packing in cut forms is strongly cemented. The axles are cushioned at each end, the

rear one at *D*, *D* and the front at *E*, *E*. Both *D* and *E* are designed to permit metal-to-metal contact and yet provide the silencing feature desired. An all-rubber washer *F* is applied at the 5 points where the mud guards are attached to the frame of the machine, 4 washers for the rear guard and one for the front. The Westfield Mfg. Co., Westfield, Mass.

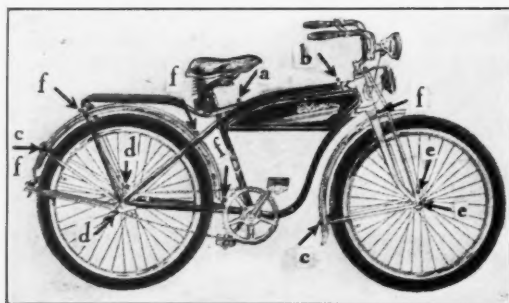
Louis Girouard, bringing to a close 61 years of service as overseer in the Hamilton Webbing Co. mill at Hamilton, R. I., has resigned. He came to Rhode Island from Ely, Quebec, 65 years ago.

Cambridge Rubber Co., Cambridge, Mass., stated that spring sales in units and dollars exceeded those of a year ago and sales of fur trimmed Raynshu Ties are running ahead of last year's figure. The company also enjoyed greater retail distribution through branches this past season. Cambridge Rubber now offers heavy rubber footwear, boots, and 4-buckle overshoes as well as its lightweight footwear; last season the concern did not make heavy-weight rubber models.

United States Rubber Co., Providence, R. I. Increased demand for rubber thread, as the fall season for that product opens, indicates that the company's rubber thread department will soon be on a full-time schedule as compared with the 3-day-a-week basis that has prevailed for several weeks, according to E. O. Upham, factory manager. There are approximately 200 workers in that department who will be affected. The pick-up in demand for rubber thread is normal at this time of the year, Mr. Upham states, and the present revival marks the first change from a curtailed basis since call for thread entered a seasonal decline late in May. Meantime other departments given principally to the manufacture of bathing suits, golf balls, and similar seasonal goods will probably begin a moderate downturn.

Quabaug Rubber Co., North Brookfield, Mass., manufacturer of "Armortred Brand" rubber goods, through Sales Manager F. C. Rooney has graciously forwarded a souvenir program of "Connie Mack Day with George M. Cohan Master of Ceremonies" held July 10, 1934, at their birthplace, North Brookfield, Mass. This interesting booklet gives brief sketches and photographs of the town's renowned sons, including Connie and George M. The former's star baseball team of 1883 is shown, also the teams assembled for the anniversary game this year. Other highlights of the town's development, including several mentions of the Quabaug Rubber Co., are touched. Old-timers will find many fond memories recalled when perusing this fascinating program.

(Continued on page 68)



Columbia Bicycle
Rubber Mountings

OHIO

Akron reports the rubber industry has taken a very decided slump. The larger manufacturers are operating about 25% capacity, it is said. The smaller ones have been very low from a production standpoint ever since floor prices were established as it is practically impossible for smaller concerns to sell tires on an equal basis with their larger competitors. The downward slide in tire production is expected to continue for several months because of the large unfinished inventory, some of which is against labor troubles, and declining tire sales that start each year in August. Besides present retail tire prices do not represent replacement cost; therefore most companies, particularly the smaller ones, are not pushing sales and thereby reducing their loss by that much. The mechanical goods business, though, does not seem to have suffered so much as has the tire end.

The outlook for the fall is depressing. Present production schedules are expected to be continued, with a possible reduction. Industry seems to be marking time, awaiting news from Washington. The house and the general building programs expected to commence within 60 days may have some effect on the situation, for the better.

Cleveland, however, reports that although rubber companies in its territory slowed down the past 6 weeks or so, they anticipate improving business toward mid-September.

Lincoln Rubber Co., Inc., Barberton, manufacturer of rubber gloves, finger cots, balloons, nipples, and dipped and molded novelties, announced the appointment, on August 13, of a new treasurer, J. J. Schnitzler, for the past 12 years cashier of India Tire & Rubber Co., Mogadore. Other Lincoln Rubber officers remain the same: Wm. F. Kelley, president; Chester Scheneman, vice president; and N. M. Chapman, secretary.



John F. Joseph

Mechanical Goods Expert

Recently elevated to the presidency of The Cincinnati Rubber Mfg. Co., manufacturer of mechanical rubber goods, Cincinnati, O., was John F. Joseph, born January 6, 1882, the proud owner of a long and successful record in mechanicals. He worked for The B. F. Goodrich Co., Akron, for 28 years. While there he won several promotions, having been superintendent of the mechanical goods division at the time of his resignation. Then, on December 1, 1925, he joined the Cincinnati firm as vice president and general manager. When the company head, Fred A. Geier, died this March, the vacant office went to Mr. Joseph, who continues also as general manager.

General Tire Notes

Joseph A. Andreoli, vice president and general manager of the export division of the General Tire & Rubber Co., Akron, announced that because of

the satisfactory settlement of the company's strike General's export activities, recently transferred to the Canadian plant at Toronto, had been returned to Akron. This move makes for increased production at the local plant.

General recently presented every employee with a \$1,000 life insurance policy, the premiums for which will be paid entirely by the company. Included are about 2,200 persons in factory, office, and branches. The company also will share with employees, who care to take advantage of it, the cost of group accident and health insurance, which provides weekly payments for disability resulting from sickness or non-occupational accidents. President William O'Neil said. With this protection against disability, the company has arranged for additional payments to employees during confinement in a hospital, including payments to cover certain special hospital fees. General thus is one of the first organizations in the country to make such provision for the care of sick or injured employees. Both the life and the health and accident insurance privileges are available to all employees with the company 6 months. New workers will be eligible for insurance upon the completion of 6 months' service.

Goodyear Tire & Rubber Co. defense hearings on the federal trade commission charge that its tire contract with Sears, Roebuck & Co., Chicago mail order house, violates the anti-trust laws closed on August 17 in Cleveland for a 3-week recess. Hearings will be resumed in Chicago, Ill., on September 11, 1934.

"Goodyear Day," held August 20, attracted 56,000 company employees and their families to this annual celebration at Euclid Beach on Lake Erie. Sports events, dancing, bathing, and rides on concessions were enjoyed by the picnickers.



General Tire & Rubber Co.'s Salesmen from United States and Canada Attend Sales School at Akron

Goodrich Activities

A complete line of rubber tired industrial wheels, specially designed to replace obsolete steel wheels on equipment already in service, was announced by The B. F. Goodrich Co., Akron. Known as Goodrich "Vulc-On," the line is now available in a wide assortment of sizes and types to meet practically every operating condition, in factories, docks, loading platforms, and warehouses. The new line gets its name from the fact that the rubber tire is permanently bonded to the wheel, accomplished by vulcanizing the rubber to the metal by the same process used in manufacturing solid truck tires. Thus tires do not stretch or roll off the wheels. Advantages cited for the "Vulc-On" wheels are: reduction of wear and tear on floors; easy rolling; lower depreciation on equipment; less noise and confusion; reduced breakage claims; fewer delays and tie-ups; and increased handling speed.

With the completion of Unit B addition to the Martha Mills, Thomaston, Ga., Goodrich's textile division, the total spindleage of this unit has been raised to 135,000. B unit has 38,000 spindles. This expansion program is one of the largest undertaken in the South in some time.

J. A. Hoban, manager of Goodrich's retail department, has announced the opening of the following new Goodrich Silvertown, Inc., stores: 815 Ellis St., Augusta, Ga., C. W. Gardenhire, manager; 225 Broad St., Elyria, J. A. Mason, manager, R. G. Tiffin, operating and credit manager; 418-20 N. Washington Ave., Lansing, Mich., L. D. Lewis, manager, Charles L. Conkle, operating and credit manager.

Victor Rubber Corp., Springfield, manufacturer of automobile mats, radiator hose, and mechanical rubber goods, according to Receiver L. C. Sturgis will be offered at public sale September 10 at 2:00 p.m. at Maitland, a suburb of Springfield. Real estate, machinery, and equipment may be bid for as a whole or separately.

The American Hard Rubber Co. plant, Akron, is shut down the second time as 500 employees walked out August 21. Demands of the union workers include: 6-day week and 6-hour day instead of 8-hour day and 5-day week now scheduled; one week's vacation with pay for 2-year workers and 2 weeks' paid vacation for workers with 5 or more years' service; seniority to rule in case of layoffs; increase in wages ranging from 3¢ to 10¢ an hour.

NOTES ON BALATA. A. D. Luttringer, *Caoutchouc & gutta-percha*, July 15, 1934, pp. 16836-38.

ISOPRENE AND RUBBER. Part 41. The Hydrogenation of Rubber and Balata. H. Staudinger and E. O. Leupold, *Rubber Chem. Tech.*, July, 1934, pp. 496-502. Translation.

EDITOR'S BOOK TABLE

Book Review

"Kautschuklacke und Kautschukkitte." By Otto Merz. Published by Union Deutsche Verlagsgesellschaft, Zweigniederlassung, Berlin, Germany. Cloth; 170 pages; 6¼ by 9¼ inches; 40 tables; 14 illustrations.

In collecting data on rubber varnishes and cements Otto Merz has performed a service for which the rubber industry owes him a hearty vote of thanks. He presents his material in 20 concise chapters treating source and harvesting of rubber, gutta percha, and balata; thermoprene; chlorinated rubber; solvents; rubber emulsions; accelerators; different types of rubber varnishes; latex paints; varnishes from thermoprene and chlorinated rubber; varnishes without rubber for rubber goods; rubber cement; varnishes and cements from resins of rubber, balata and gutta percha, etc. A number of formulae are given, also numerous references to articles and patents.

The indices of authors, subjects, and patents, the good paper, clear print, and neat, strong binding all help to make the little volume a worthwhile addition to the rubber library. If one criticism is permitted, it must be that the data referring to latex could have been more ample.

Rubber Bibliography

(Continued from page 46)

HEAT TREATMENT OF SYNTHETIC SODIUM-BUTADIENE RUBBER. M. Farberov and F. Merzlikin, *J. Rubber Ind.* (U. S. S. R.), 10, 123-25 (1933).

SCORCHING OF MIXTURES OF SODIUM-BUTADIENE RUBBER AND SKB RUBBER. P. Kaplin, *J. Rubber Ind.* (U. S. S. R.), 10, 139-41 (1933).

COMBINATION OF GAS BLACK AND INORGANIC FILLERS IN SKB RUBBER MIXTURES. A. Ermolaev and A. Bobrov, *J. Rubber Ind.* (U. S. S. R.), 10, 130-36 (1933).

COMPOUNDING OF BENZINE- AND OIL-RESISTING RUBBER MIXTURES. V. Kartzev and A. Golubev, *J. Rubber Ind.* (U. S. S. R.), 10, 301-11 (1933).

DETERMINATION OF SULPHUR IN RUBBERS BY OXIDATION WITH AQUA REGIA. A. Serebrennikov, *J. Rubber Ind.* (U. S. S. R.), 10, 243-46 (1933).

PHYSICAL PROPERTIES OF RUBBER AT LOW TEMPERATURES. S. Hvostovskaya and V. Margaritov, *J. Rubber Ind.* (U. S. S. R.), 10, 231-41 (1933).

ORGANIC ACCELERATORS IN MIXTURES WITH "TAU SAGIZ" RUBBER. V. Maslov, *J. Rubber Ind.* (U. S. S. R.), 10, 147-57 (1933).

AGE-RITE AS AN ANTIAGER FOR RUBBER. N. Chesnokov, *J. Rubber Ind.* (U. S. S. R.), 9, 400-13 (1933).

EFFECT OF COPPER SALTS ON CRUDE RUBBER. B. W. Bysow, W. S. Molodensky, and N. I. Michailow, *Kautschuk*, July, 1934, pp. 104-107. (Conclusion.)

New Publications

The Vanderbilt News. R. T. Vanderbilt Co., 230 Park Ave., New York, N. Y. The July-August issue of this publication comprises an informative article on the "Effect of Decreasing Sulphur on Tensile Properties at 100° C." The highly important advantages of low sulphur compounds are indicated by voluminous laboratory test data and graphs. The commercial applications of low sulphur compounds are indicated by an imposing list of rubber goods because of their requirement of heat resistance, good aging, or both.

"Acrin in Rubber Footwear. Laboratory Report No. 175." E. I. du Pont de Nemours & Co., Inc., Wilmington, Del. This report supplements an earlier one, No. 132. It is virtually a treatise on modern compounding for rubber footwear, illustrated by typical mixings with cures and corresponding test data demonstrating the antioxidant value of Acrin in such stocks.

"The Situation in Crude Rubber." Munds, Winslow & Potter, 40 Wall St., New York, N. Y. In this 4-page bulletin the crude rubber condition is reviewed as to production and consumption under restriction, visible rubber stocks, the price objective of producers, and its results on the market.

"Year Book and Code Guide—1934." National Association of Waste Material Dealers, Inc., Times Building, New York, N. Y. This publication is successor to the previous "Anniversary Blue Book" issued by the same association. It contains all the code information relating to the waste material trade and those codes closely related to that trade. It will serve as an authoritative guide to all dealers, producers, and consumers of waste and secondary raw material.

"Dow Chemicals." The Dow Chemical Co., Midland, Mich. This superbly illustrated 100-page book catalogs and describes the extensive range of products produced by this company, which comprise industrial and pharmaceutical chemicals, aromatics, insecticides, fungicides, dyes, magnesium, and Dow-metal. The chemical analysis of all products and some of the uses of each product are given.

"Bentonite Handbook." Bulletin No. 107. Silica Products Co., 700 Baltimore Ave., Kansas City, Mo. This booklet is an exhaustive discussion of the properties, sources, geology, production, and uses of bentonite, a natural anhydrous silicate of alumina having many industrial applications including aiding in forming water dispersions of rubber.

"Flexo Joints." Flexo Supply Co., Inc., 4221 Olive St., St. Louis, Mo. This illustrated bulletin, No. 163, pictures and describes the flexible joints supplied by the company, particularly as applied to rubber vulcanizing presses.

Rubber Industry in Europe

GREAT BRITAIN

Restriction Views

The annual luncheon of the Incorporated Society of Planters was held in London on July 6. Sir Philip Cunliffe-Lister, Secretary of State for the Colonies, the guest of honor, spoke of the rubber industry, the Society of Planters, and more particularly of restriction. Restrictions, he said, were consequences and not causes; the fundamental cause of the shrinkage of world trade was that the prices for primary commodities were too low, leaving profit neither to the producer nor purchasing power to his worker. By restoring a reasonable price level of primary commodities, the purchasing power of the world and with it the trade and shipping of the world would be restored; consequently the organization of an effective scheme of controlling rubber would not only benefit the rubber industry, but the world at large. The scheme has already improved the position of the rubber industry, and this improvement was further reflected in improved salaries and working conditions in the East, but he would regard the scheme as a failure unless everybody in the industry was going to benefit.

Particular interest centers in Sir Philip's concluding remarks in which it was suggested that producers were expected to avail themselves of the opportunity now offered to increase their efficiency. A scheme like the present one, he said, was not designed that things might stand still. It should be, and would be designed, he believed, while giving security to encourage efficiency to the utmost. In the industry were strong units and others less strong, and the latter might be stronger and more efficient as a result of well-considered amalgamation.

"By amalgamation," he explained, "I do not mean a promoter's amalgamation. What I mean, and I do not predicate for an instant as to what is or is not an economic unit in an industry, is that it is up to the rubber industry to take the opportunity of the new sense of security which this scheme affords, and for those units which are not the most efficient for the purpose, to get together and to see that the industry individually and as a whole is as efficient as it can be."

Fireproof Rubber

A new process; which it is claimed renders vulcanized or unvulcanized rubber, compounds containing sulphur and plasticizers absolutely non-inflammable, has been invented by J. Talbot

and N. R. Neal. According to the London *Rubber Age*, strips of cured and uncured rubber treated by the new process have been exposed to the flames of a Bunsen burner for some minutes without any appearance of burning. Sheets of the specially prepared rubber have been flooded with solvent naphtha and then ignited; but the only result was that the naphtha burned out while the rubber remained unaffected. Again wooden sticks were dipped in ordinary rubber solution and, when lit, burned out completely; whereas treated solution remained incombustible when submitted to the Bunsen flame. The new preparation, said to be inexpensive, does not affect colors or other ingredients usually employed in rubber compounding.

Powdered Rubber

The first consignment of powdered rubber produced by the de Schepper process, on the Dangan Rubber Estates, Ltd., Ceylon, was recently received by the Rubber Powder Co., Ltd., London. This powder, made direct from latex with or without ammonia, is practically pure except for a small percentage of zinc stearate added to prevent coagulation and massing in transport. Since zinc stearate is used in manufacturing rubber articles, no objection exists to its presence in the powder. To obtain the granulated form the latex is sprayed on to a stainless steel belt which passes into a tunnel heated to the required temperature for drying, and the grains formed from drops are then brushed off. The process, being entirely automatic, eliminates the use of smoke houses, drying lofts, heavy machinery, acids, chemicals, etc., on the plantation; while the rubber manufacturer can avoid costly machinery.

British Notes

The Rubber Regenerating Co., Ltd., Trafford Park, Manchester, for years one of the biggest reclaim manufacturers in England, is now passing entirely into British ownership. No change will be made in the executive management; while the firm will continue to act as European agent for the Naugatuck Chemical Co., Naugatuck, Conn., U.S.A. It is further learned that the Rubber Regenerating Co. has acquired the solvent reclaim patents and the business of the Thomas Hard Rubber Corp., Ltd., and Kaycee, Ltd., in Great Britain. The solvent, or Kaycee, reclaim has been developed by the Thomas corporation, and the demand

for this product has become so great that immediate steps are being taken to transfer its manufacture to the Trafford works of the Rubber Regenerating Co.; while the plant where it has hitherto been produced is to be devoted to manufacturing the solvent used in the Kaycee process and to developing certain new rubber chemicals.

A section of the Institution of the Rubber Industry has been formed in Preston and a sub-section in Leicester.

A recent issue of the review of the London rubber market, of Charles Hope & Son, was sent in envelopes which, instead of the usual gummed flap, have 4 bars of a rubber compound which adhere very firmly together without pressure or moisture.

Scenery for films is usually made of 3-ply wood. At the Paramount studios, however, it has been found that sets of bombazine, a rubber-surfaced cloth used for waterproofs, not only give excellent results when photographed, but also help to effect a substantial saving in costs.

C. Renton Coomber, now director as well as general manager of P. B. Cow & Co., Ltd., recently left for America and Canada accompanied by Clifford Martin, a director of the advertising firm of the same name. The object of the visit is to start a publicity campaign for the Li-Lo Sports Air Bed, a product of the Cow concern that has found great favor in England.

The Northwestern Rubber Co., Litherland, was damaged by fire July 21, the main loss being raw stock in the yard, which ignited the main factory building and this was destroyed. The power plant, mill room, finished stock room, and offices are intact. The company expects to build and equip a new process building at once so that the entire plant will be in operation in a short time.

Germany

The Rubber Control Bureau is proceeding with its measures to regulate the rubber industry, with a view to limiting crude rubber consumption. Manufacturers and dealers of tires and tubes, importers and dealers of crude rubber, and dealers in scrap rubber have duly been registered, and their stocks recorded.

The sizes and qualities of cycle tires that may now be produced and the amounts of new rubber that may be used in their manufacture have been limited. Furthermore it has been ruled

that for every tire and tube of the old type a tire and tube of the new type must be sold.

On July 18 the automobile tire industry was ordered to form a new compulsory cartel. In the beginning of 1934 prices had been slightly reduced, but the rise in the price of crude rubber would necessarily have led to an increase in tire prices. The chief purpose the Government aims at with the new cartel is to prevent just such an increase in tire prices to consumers. At the same time it wishes to limit output by forbidding the erection of new works to manufacture tires and the expansion of existing works. Special cases will be decided on by the Government.

Hitherto none of the regulations aimed at restricting the purchase of crude rubber. By a recent decree, however, no manufacturers or dealers may import or buy crude rubber, gutta percha, balata, waste and old rubber, reclaim, and soft rubber dough without special permits. The permit is not necessary for local purchases of old rubber or reclaim. Besides, no one not professionally engaged in the rubber trade before May 9, 1934, may buy or dispose of rubber without permission.

To add to the amenities of importing and manufacturing rubber, special taxes are to be levied to cover the administration costs of the control bureau. Importers will pay 0.75-mark per 1,000 kilos on crude rubber, if dealers, and 1.50 marks if manufacturers; 3 marks per 1,000 kilos on reclaim, and 0.50 on scrap rubber. There will also be a manufacturing tax, to be paid by manufacturers, of 1 mark per 1,000 kilos on crude rubber, 0.50-mark on reclaim, and 0.25-mark on scrap rubber.

In connection with the measures to restrict rubber imports it is interesting to note that German imports of crude had been increasing rapidly and were 416,900 quintals in the first half of 1934 against 312,400 quintals during July-December, 1933, and 292,500 quintals during January-June, 1933.

In line with the new system of putting industries under "Leaders," Albert Schafer, director of the Harburg Gummiwarenfabrik Phoenix, Harburg-Wilhelmsburg, has been appointed "Leader" of the Section Rubber Industry which now forms part of the Section Chemical Industry.

The foundations of machinery are usually constructed of concrete with felt, cork, or rubber mats to deaden vibration. In practise this method has been found to fail because the technics of vibration have not been properly studied, said K. Oeser in a paper, "Rubber Foundations," read at the meeting of the Deutsche Kautschuk Gesellschaft, May 27, 1934, at Cologne. For foundation purposes, rubber springs in the form of cylinders should be used, and different designs are required in different cases. The rubber should further be protected from oil and must be so laid as to permit easy removal of the foundation parts when necessary.

Other European Notes

The Societe des Matieres Colorantes et Produits Chimiques de Saint Denis, France, recently published details on the rapid accelerator ARU. This is a non-toxic, creamy-white powder with slight aromatic odor; it is soluble in benzene and very soluble in chloroform, but insoluble in acetone and alcohol. It is very active, gives a good vulcanization range and good aging. It can be used in the manufacture of sponges and for white or bright colored goods; ARU mixes can be worked on the calender or tubing machine. In general 0.6 to 1% of ARU calculated on the rubber is used in the presence of 2 to 2.75% sulphur and 5% zinc oxide.

In Poland the production of galoshes and excluders increased in 1933 as compared with 1932: 1,260,000 pairs against 793,000 pairs and 2,027,000 pairs, against 1,124,000 pairs respectively. Other rubber footwear, however, declined from 5,339,000 to 3,788,000 pairs. News from the Polish rubber manufacturers, on the whole, is still gloomy.

The Pepege concern of Graudenz closed from July 15 to August 15. There is talk of dropping the production of mechanical goods and concentrating on footwear exclusively. The principal creditors, it is further learned, are not satisfied with the suggested arrangement whereby the major part of their claims would be met with new shares; while the smaller creditors are said to favor a declaration of bankruptcy.

The Wolbrom Rubber Factory, Wolbrom, reports a loss of 359,408 zloty. The share capital and reserves aggregate 1,558,488 zloty.

The Warsaw Cable Factory booked a profit of 124,850 zloty.

The Societe Belge pour la Fabrication des Cables et Fils Electriques, Brussels, Belgium, made net profits of 2,410,000 francs during the past business year. A dividend of 61.55 francs was declared on the common shares and 113.05 francs on the preferred stock, the nominal value of these being 250 francs.

Manufacture de Cables Electriques et de Caoutchouc S. A., Eupen, Belgium, capitalized at 18,000,000 francs, declared a 20% dividend.

A new rubber factory has been established by Oskar Goldmann in Temesvar, Roumania, it is reported.

The Matador Gummi-Werke, Prague, Czechoslovakia, reports net profit of 246,766 Czech kronen, which will be carried forward.

Tornesit Paint

R. A. Coolahan¹

THE properties of Tornesit and its application as paint for the protection of wood and metals against severe conditions of corrosion are indicated in the following excerpts from a paper recently read on the subject.²

Tornesit is a yellowish white powder.

This new resin-like raw material, a highly chlorinated product of rubber, is stable, chemically inert, non-flammable, non-combustible, and practically odorless. Its specific gravity is 1.5, and its bulking value is 0.08 gallon per pound. It is soluble in a number of solvents, the most practical ones being the coal tar hydrocarbons. Suitable plasticizers include properly boiled wood oil, blown raw linseed oil, the ester type plasticizers, and hydrogenated methyl abietate ("Hercolyn"). Some useful resins are the amberols, the coumarones, the indenes, and certain Glyptal resins, and ester and dammar gums.

The more important field for Tornesit is in pigmented products used as films for outdoor exposure and specialty paints. The most economical and suitable plasticizers for acid resistance and ordinary exposure are drying oils like properly bodied wood oil and blown raw linseed oil. Other ingredients of value for priming coats are fillers such as asbestine, silica, and Kaolin. These materials further improve adhesion and brushability in addition to being very inexpensive.

Tornesit can be sprayed, brushed, dipped, or flow coated. Some high boiling solvents like hi-flash naphtha should be used to avoid lap marks when brushing because Tornesit paints dry even more rapidly than lacquer.

The laboratory practice in making Tornesit paints follows:

First, a base solution is prepared, consisting of 30% Tornesit in a 2-to-one mixture of hi-flash naphtha and xylol. To effect solution is a matter of a very few minutes if the Tornesit is added to the solvents.

Second, a concentrated gum solution in xylol is made.

Third, the pigments are ground in the plasticizer, or if it is insufficient, some of the Tornesit base solution is used.

Fourth, if a brushing paint is required, the base solution is thinned to a Tornesit content of 21 to 22% by the addition of a solvent mixture consisting, as originally, of 2 parts hi-flash naphtha and one part xylol. If a spraying composition is desired, the base solution is thinned with toluol to a Tornesit content of 11 to 12%.

Finally, add the gum solution and pigment paste to the reduced solution and stir.

The spraying viscosity of Tornesit paints is approximately 40 centipoises, somewhat lower than the 75 centipoise spraying viscosity of lacquer. However, difference is not so great as it appears to be at first sight. The solids content of such a product will vary from 30 to 40% depending, of course, on choice of ingredients.

Brushing paints with as high as 57% solids have been successfully applied. For this purpose a working viscosity of about 250 centipoises is recommended.

¹ Hercules Powder Co., Inc., Wilmington, Del.
² "Tornesit. Its Properties and Applications." Read at a joint meeting of the Society of Chemical Industry, Montreal Section, and the Montreal Paint & Varnish Production Club, March 7, 1934, and at the March 16 meeting of the Toronto Paint & Varnish Production Club.

Rubber Industry in Far East

NETHERLANDS EAST INDIES

Rubber Paper Factory

If plans of certain Scandinavian factories producing a new kind of rubber paper materialize, a factory of this kind may also be established in Java and eventually in the Federated Malay States too. It appears that about 1½ years ago Harald Hestnes, a Norwegian, invented a new kind of wrapping paper made by pressing a layer of a latex cement between 2 sheets of paper. The product thus made is said to be waterproof, flexible, and stronger than the usual wrapping paper and seems to be in regular and successful use in Scandinavia. Not only packing paper but also very satisfactory cardboard boxes and packing cases can be produced, it is claimed.

At present Mr. Hestnes, acting as representative for the factories concerned, is in Java attempting to introduce this paper, and a few large estates are already buying it. Unfortunately for the success of this new venture, the price of rubber is increasing, and if latex costs more than 10 to 12 cents (Dutch currency) per pound, manufacturing will not be very profitable. It would therefore be a great advantage if special rules could be introduced permitting latex for the above purpose to come on the market at a fixed price, and one of Mr. Hestnes' tasks is to endeavor to effect this ruling. The possibilities for the new product are said to be unlimited. Meanwhile, by establishing a factory in Java, it would be possible to effect some saving in costs, as for instance in freights, whereby the higher price of the latex might to some extent be offset.

Goodyear's Factory

Further details regarding the Goodyear rubber factory at Buitenzorg are now available. The factory is primarily intended to counter competition from Japanese tires. In this connection the *Bat. Nieuwsblad* points out that in 1932 Java imported in all 125,000 automobile tires and 136,000 tubes, most of which were from England, America, France, and Italy. In that year, however, Japan for the first time entered the Netherlands East Indies market on a more important scale and sent 10,000 each of tires and tubes. The following year the total imports of these goods into Java were 137,000 tires and 116,000 tubes, and Japan shipped 22,500 tires and 24,500 tubes. In one year Japanese were able to more than double their business with Java. Figures so far available indicate

that imports from Japan are still increasing while those from the United States are stationary.

The Goodyear factory will have a capacity of 500 tires a day and, of course, selling will not be confined to the Netherlands East Indies, but other markets in the East will be reached too. Buitenzorg is not on the coast, but further inland about 40 miles from Batavia, with which it is connected by rail. The reason why the former town was selected instead of Batavia or Bandoeng is not, as was at first reported in the local press, because of difficulties regarding terms and rates, but because Buitenzorg has a more suitable climate for tire manufacturing as well as a cheaper and better water supply.

Rubber Roads

Manager Fermin, of the Djasinga Rubber Estate, for some time experimenting with protective rubber surfaces for roads, finally perfected a process which seems very promising. Trial patches laid by him at Djasinga estate have been so successful that the authorities at Buitenzorg will permit the laying of a section on one of its busiest roads, a curve in the Grooten Postweg, purposely chosen because the union of the rubber surface to the road, always a difficult technological problem, would be submitted to an extra severe test. It is planned also to lay trial sections in Batavia and Bandoeng. Needless to say, the experiment is being watched with much interest, for, if successful, a welcome local outlet for non-exportable rubber would thus be possible.

Fermin's preparation is relatively simple to lay, it is said, and can be applied to existing asphalt roads and also on macadam. It is so compounded of latex and other suitable ingredients that the rubber vulcanizes when exposed to sunlight. About 2 kilos of rubber in the form of latex are used per square meter.

Native Rubber

So far the imposition of the special rubber export duty on native rubber has not aroused any opposition, largely owing to the announcement that the proceeds would be used to benefit the native population. A tax of this kind is nothing new to the natives, for they paid a 5% *ad valorem* duty on their rubber for some years before restriction was introduced. What minor difficulties have presented themselves have had chiefly to do with the method of

applying the tax and have been caused by the variety of types of rubber produced. However efforts are made to overcome these difficulties as soon as they are met, and customs officers are carefully checking up all rubber as it arrives, particularly as regards the moisture content. A loss of 30% in washing has usually been calculated in estimating the dry rubber content of wet native rubber, and it has not taken the more intelligent native long to figure out that he stood to gain in the matter of the duty if he shipped drier rubber. Fortunately so far there have been very few attempts of this kind, and such cases as have occurred have immediately been discovered. Native rubber is now to be more carefully scrutinized than ever; while it seems that the allowance for loss in washing has been revised.

The special duty, it should be explained, is in addition to the already existing 5% duty mentioned above. The former, recently revised, is now 16 guilders per 100 kilos for dry rubber; 8 guilders per 100 kilos for scraps, earth rubber, etc.; 13.20 guilders for wet rubber from Atjeh, Riouw, West Coast Sumatra, and Banka and Dependencies; and 11.20 guilders per 100 kilos for wet rubber shipped from all other ports.

Incidentally it is reported from Dutch Borneo that a greater percentage of dry rubber is now being produced by local natives. The rubber remilling factories there are also said to be very busy, and economic conditions, on the whole, are improving.

South India

Rubber producers in South India claim their quotas under the restriction scheme are too low and are not in proportion to actual production and exports. Statistics for the years 1928-29 to 1931-32 show the average exports from India (including Burma) were 10,400 tons, to which are added 1,200 tons from the port of Alleppey, to total 11,600 tons. Of this about 6,500 must be credited to South India. If now an allowance for immature rubber is added, the fair figure for South India's share of the 1934 basic quota becomes 7,500 tons instead of the 6,050 tons (exclusive of the *ex gratia* allowance of 800 tons) actually allotted. There is also a discrepancy in figures of South India acreages, given as 69,000 acres; whereas in 1932 they actually totaled 70,986 acres, besides the 16,106 acres planted from 1927 to 1932, inclusive. These figures do not include very

many small holdings, especially in Travancore. In view of all this certain producers are asking for a revision of quotas. However it has been pointed out that this request would set a bad precedent. Besides, considering that production of rubber in South India had declined by some 90% in 1932-33, there seems to be little cause for complaint.

Japan

Japan's crude rubber imports, which were increasing rapidly, have suddenly receded. While shipments during the first quarter of 1933 were 22,163 tons, they were only 15,857 tons in 1934.

Exports of manufactured rubber goods from Japan represented a total value of 49,005,000 yen, against 31,297,000 yen in 1932, 24,313,000 yen in 1931, 24,469,000 yen in 1930, and 24,141,000 yen in 1929. It will be noted that during 1929-1931 the figure was stationary, but was more than doubled from 1931 to 1933. Footwear of various kinds continues the most important export, though substantial advances are found in exports of toys, tires, and other goods as the following table (values, in 1,000 yen) shows:

PRODUCT	1933	1932	1931	1930	1929
Rubber boots and shoes..	8,213	4,890	4,394	6,592	7,444
Rubber-soled canvas shoes	19,993	15,044	12,819	10,276	6,787
Tires for Rickshaws	819	652	857	...	...
Cycles and motorcycles	4,308	2,248	1,901	5,273	6,300
Other	3,712	1,477	1,099	...	...
Toys	8,613	5,507	2,199	2,049	2,161
Other goods..	3,327	1,479	1,044	1,279	1,449

The shift was notable in the destination of rubber boots and shoes: while almost the entire 1929 exports, amounting to 1,158,000 dozen pairs, went to Asiatic countries, Europe took 50% of the total 1,012,000 dozen in 1932, England alone importing 430,000 dozen pairs. The following year, however, Europe's share was again below that of Asia, having been 337,000 dozen pairs out of a total 1,046,000 dozen pairs.

As to canvas rubber-soled shoes, the following table (value, in 1,000 yen) illustrates the strides made here:

	1933	1932	1929
Asia	11,868	8,353	6,063
Europe	3,905	2,742	17
America	1,152	2,084	282
Africa	2,041	1,346	180
Australia and New Zealand	679	192	35

America continues Japan's best customer for rubber toys although there was a decline in 1933 to 2,000,000 yen from 2,100,000 in 1932; this was more than offset by increased shipments to England, 1,700,000 against 900,000 yen, and British India, 1,600,000 against 600,000 yen.

The Association of Rubber Exporters, it is learned, has taken over control of the exportation of rubber footwear and will fix prices and quotas, and it has decided also that all shipments must be accompanied by certificates indicating the conditions of the cartel have been met.

A new Japanese enterprise was

started this year with the construction of a factory for rubber-soled canvas shoes in Mambaling, a suburb of the city of Cebu, Philippine Islands. The Health Factory, as it is called, is the first Japanese footwear factory there. It is said to have a minimum daily capacity of 2,000 pairs; about 135 persons are to be employed. The factory will use locally-grown rubber. Figures for 1932 show that 3,496 hectares were planted with 794,620 rubber trees in the Philippines, but owing to low prices only 25,710 kilos of rubber were produced that year.

Ceylon

Paranitrophenol (P.N.P.), used for some years by certain estates in Ceylon to prevent mold developing in crepe during drying, proved very satisfactory. Manufacturers, however, recently objected to the presence of P.N.P. in crepe rubber because it is liable to cause staining of certain colored goods and of the wrapping papers used for packing. The Rubber Research Scheme, accordingly, can no longer recommend the use of P.N.P. in the manufacture of crepe. No objection has been raised to the use of the chemical in smoked sheet; on the contrary, its moderate use was declared beneficial.

Malaya

Restriction has imposed an enormous amount of work on the office of the Controller of Rubber, and for more than a month it has been necessary to work long hours 7 days a week. *The Straits Times* reports so great was the rush to get as much rubber as possible out of Malaya before restriction became effective that many estates were unable to produce further stocks until well on in June. In fact for nearly 3 weeks in June hardly any rubber subject to restriction was exported. Hence the low figures for June exports.

Johore reports that many natives who had turned from rubber to food crops are again tapping heavily. In some cases Chinese with lanterns attached to their heads go out to tap at 2 and 3 o'clock in the morning. It is claimed that the latex runs more freely at this early hour than later in the day.

The labor situation, described as acute in certain sections and the cause of much uneasiness, appears to be easing somewhat. The Controller of Labor announced that while there is temporary and local shortage, the condition is not acute for 90% of the rubber estates. More Indian coolies have been arriving of late; while the quotas for Chinese immigrants have been raised. These had been as low as 1,000 a month, but were raised once to 2,000 a month in May and again to 3,000 a month in July. It is believed that the figure may be still further increased before long.

Eastern and Southern

(Continued from page 51)

NRA Directors, without reference to Washington, were able during the 2-week period ended July 21 to adjust 990 complaints alleging violations of code minimum wage or maximum hour provisions. In most cases the alleged violations were found merely employers' misunderstandings of their obligations under codes; and the result of conferences and explanations was that restitution of a total of \$106,732 was made to some 4,300 employees throughout the country.

Another recent report of the Compliance Division disclosed that, since the first NRA Code became effective in July, 1933, until July 1 last, when more than 500 codes were in operation, less than 63,200 complaints of violations had been filed against the nearly 3,000,000 employers of more than 24,000,000 industrial workers in the United States. Duplications accounted for nearly 1/2 the 63,200; and investigations disclosed that from 20 to 30% of all of the complaints received were either the work of "cranks" or were unfounded.

Under NRA regulations, complaints of violations of the wage and hour provisions of the codes may not be adjusted by State Directors on any basis other than restitution by the employer of the full amount of back wages due the affected employees.

Footwear Manufacturers Exempted

The National Recovery Administration announced August 25 approval of the application of the following waterproof and canvas rubber-soled footwear manufacturers for exemption from provisions of Article V-A, Chapter IV, of the code for the rubber footwear division of the rubber manufacturing code relating to price-fixing: Cambridge Rubber Co., Cambridge, Mass.; Converse Rubber Co., Malden, Mass.; Endicott-Johnson Corp., Endicott, N. Y.; Firestone Footwear Co., Boston, Mass.; Hood Rubber Co., Inc., Watertown, Mass.; Lambertville Rubber Co., Inc., Lambertville, N. J.; Servus Rubber Co., Rock Island, Ill.; Tyrer Rubber Co., Andover, Mass.; and United States Rubber Co., New York.

Tire Price Differentials Restored

August 26 the NRA adopted a new price scale revising the retail floor price level of rubber tires. Effective August 27, it continues to October 1. Nationally advertised first line tires are increased 11%; second line, 6%; third line or truck tires, no increase; filling stations selling first line tires, 4% increase; mail order houses, outlets of 15 medium sized manufacturers, and 10 subsidiaries selling first and second line, unchanged, third line and trucks, 5% reduction; 22 small manufacturers, and mainly chain automotive accessory supply stores, distributing private brands, first line, 3 1/2% reduction, second line, 4% reduction, third line 5% reduction and truck tires, 8%; tires sold by mail catalogs or telegraph, average price reduction of 15% on popular sized tires.

Patents and Trade Marks

MACHINERY

United States

- 1,963,179. **Rubber Stock Reeler.** E. W. Stacey, Beverly, Mass., assignor to United Shoe Machinery Corp., Paterson, N. J.
- 1,963,331. **Flap Trimmer.** N. W. Mathey, Boston, Mass.
- 1,963,494. **Ball Decorator.** W. E. Humphrey, Jeannette, Pa., assignor to Pennsylvania Rubber Co., a corporation of Pa.
- 1,963,503. **Rubber Mixer.** E. E. Quinton, Heath, England, assignor to Dunlop Tire & Rubber Corp., Buffalo, N. Y.
- 1,963,871. **Tire Curing Bag.** C. M. Semler, Cuyahoga Falls, O.
- 1,963,956. **Ball Transfer.** J. Craig Butler, assignor to Mathews Conveyor Co., Ellwood City, both in Pa.
- 1,964,038. **Tester.** A. J. Dexter, E. Springfield, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.
- 1,964,363. **Tire Builder.** C. A. Ostling and J. J. McEwan, both of Pontiac, assignors to Morgan & Wright, Detroit, all in Mich.
- 1,964,445. **Bead Former.** G. F. Wickle, assignor to United States Tire Co., Inc., both of Detroit, Mich.
- 1,964,600. **Extruder.** V. E. Royle, Paterson, N. J.
- 1,964,602. **Tire Expander.** H. J. Schumacher, Minneapolis, Minn.
- 1,964,681. **Extruder.** T. H. Williams, Cuyahoga Falls, assignor to National Rubber Machinery Co., Akron, both in O.
- 1,964,691. **Knit Goods Treater.** C. A. Shippling, Kitchener, Ont., Canada, assignor, by mesne assignments, to Goodyear's India Rubber Glove Mfg. Co., Naugatuck, Conn.
- 1,964,844. **Tire Shaper and Air Bag Inserter.** B. De Mattia, Passaic, N. J., assignor to Goodyear Tire & Rubber Co., a corporation of O.
- 1,965,422. **Temperature Indicator.** J. E. Lodge, Baltimore, Md., assignor to Western Electric Co., Inc., New York, N. Y.
- 1,965,732. **Hot-Molding Machine.** E. Bisterfeld, Radevormwald, Germany.
- 1,965,738. **Cutting Mechanism.** G. O. Frostad, Milwaukee, Wis., assignor, by mesne assignments, to Cameron Machine Co., Brooklyn, N. Y.
- 1,965,824. **Hollow Article Mold.** L. J. Clayton, assignor to Viceroy Mfg. Co., Ltd., both of Toronto, Ont., Canada.
- 1,965,844. **Molded Packing Former.** E. G. Loomis, Newark, assignor to Dorin Corp., Union City, both in N. J.
- 1,966,040. **Threads from Aqueous Dispersions.** E. A. Murphy, Birmingham, England, assignor to Dunlop Rubber Co., Ltd., a British corporation.
- 1,966,073. **Shoe Sole Attaching Press.** F. P. Lioy, Passaic Park, N. J., assignor to Rex Shoe Machine Co., Inc., New York, N. Y.
- 1,966,087. **Tire Machine Strip Feeder.** H. C. Bostwick, assignor to Akron

- Standard Mold Co., both of Akron, O.
- 1,966,108. **Shoe Sole Presser.** A. F. Totz, Detroit, Mich.
- 1,966,541. **Tire Builder.** H. A. Denmire, assignor to General Tire & Rubber Co., both of Akron, O.
- 1,966,560. **Mold.** M. P. H. L. Raep-saet, Aurec-sur-Loire, France, assignor to Societe Belge du Caoutchouc Mousse, Berchem-Ste.-Agathe, Belgium.
- 1,966,766. **Tire Changer.** R. L. Raby and J. A. McKay, assignors of $\frac{1}{4}$ to P. Cooper, all of Shelbyville, Tenn.

Dominion of Canada

- 342,443. **Thread Covering Machine.** Dunlop Rubber Co., Ltd., London, assignee of H. Willshaw, Birmingham, both in England.
- 342,612 and 342,613. **Thickness Gage.** Firestone Tire & Rubber Co. of Canada, Ltd., Hamilton, Ont., assignee of R. W. Brown, Akron, O., U. S. A.
- 343,169. **Wire Wrapper.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of A. O. Abbott, Jr., and G. K. McNeill, co-inventors, both of Detroit, Mich., U. S. A.
- 343,219. **Temperature Controller.** Charles J. Tagliabue Mfg. Co., Brooklyn, assignee of F. J. Bast, New York, both in N. Y., U. S. A.

United Kingdom

- 406,548. **Sole Cutting Tool.** I. and L. Dorogi and Magyar Ruggyantarug-nyar Reszvenytarsasag, all of Budapest, Hungary.
- 406,608. **Molding Rubber by Dipping.** International Latex Processes, Ltd., St. Peter's Port, Channel Islands.
- 408,387. **Thread Extensibility Tester.** Dunlop Rubber Co., Ltd., London, and E. Simpson, Birmingham.

Germany

- 599,985. **Device to Color Balls in Layers.** Dunlop Rubber Co., Ltd., London, England. Represented by R. and M. M. Wirth and C. Weihe, all of Frankfurt a.M., and T. R. Koehnorn, Berlin.
- 601,252. **Device to Strew Granular Elastic Materials into Molds.** A. Ihlenfeld, Koln-Kalk.

PROCESS

United States

- 1,963,370. **Tire.** G. D. Mallory, Akron, O., assignor to Wingfoot Corp., Wilmington, Del.
- 1,963,943. **Disintegrating and Devulcanizing Rubber Scrap.** R. R. Gross, assignor to Xylos Rubber Co., both of Akron, O.
- 1,964,384. **Composite Article.** R. B. Marr, Montreal West, P. Q., Canada, assignor to Goodyear's India Rubber Glove Mfg. Co., Naugatuck, Conn.
- 1,964,658. **Latex-Impregnated Thread.** J. E. C. Bongrand, Paris, and L. S. M. Lejeune, Wasquehal, both in France.
- 1,964,739. **Sponge Rubber.** H. R.

- Minor, Oak Park, assignor to Liquid Carbonic Corp., Chicago, both in Ill.
- 1,964,740. **Heat Insulating Material.** H. R. Minor, Oak Park, assignor to Liquid Carbonic Corp., Chicago, both in Ill.
- 1,965,073. **Manufacturing and Reclaiming Tires.** S. Ginsberg, Nashville, Tenn.
- 1,965,180. **Waterproof Sole.** C. J. Futter and G. W. Blair, assignors to Mishawaka Rubber & Woolen Mfg. Co., all of Mishawaka, Ind.
- 1,965,297. **Attaching Shoe Soles.** A. L. Murray, Auburn, Ind.
- 1,965,627. **Architectural Lacquer System.** C. Bogin, assignor to Commercial Solvents Corp., both of Terre Haute, Ind.
- 1,965,953. **Lineman's Sleeve.** C. C. Curtis, Cuyahoga Falls, O., assignor to B. F. Goodrich Co., New York, N. Y.
- 1,966,397. **Pneumatic Tire.** R. W. Sohl, Akron, O., assignor to Wingfoot Corp., Wilmington, Del.
- 1,966,580. **Mounting Tires.** A. W. Bull, Grosse Pointe Village, assignor to United States Tire Co., Inc., Detroit, both in Mich.
- 1,966,585. **Covered Elastic Thread.** W. A. Gibbons, Montclair, N. J., assignor to Revere Rubber Co., Providence, R. I.
- 1,966,818. **Spongy Rubber.** L. E. Howard, London, England.
- 1,967,031. **Coating Articles.** R. K. Lee, Highland Park, assignor to Chrysler Corp., Detroit, both in Mich.

Dominion of Canada

- 342,665. **Rubberized Fabric.** J. E. C. Bongrand, Paris, and L. S. M. Lejeune, Wasquehal, co-inventors, both in France.
- 342,814. **Rubber-Containing Covering.** Patent & Licensing Corp., New York, N. Y., assignee of Flintkote Corp., Boston, Mass., both in the U. S. A., assignee of F. C. Van Heurn, Amsterdam, Holland.
- 342,856. **Rubber Thread.** Ketel Corp., New York, N. Y., assignee of F. Cremer, Englewood, N. J., both in the U. S. A.
- 343,187. **Rubber Article.** International Latex Processes, Ltd., St. Peter's Port, Channel Islands, assignee of E. Hazell, New York, N. Y., U. S. A.

United Kingdom

- 406,927. **Rubber Tube.** F. Capella-Dalmau, Barcelona, Spain.
- 407,593. **Ornamented Rubber Article.** W. Poppe, Giessen, Germany.
- 407,638. **Depositing Rubber Articles from Dispersions.** R. F. McKay, Birmingham. (International Latex Processes, Ltd., St. Peter's Port, Channel Islands.)
- 407,717. **Molding Vibration Damping Supports.** H. C. Lord, assignee of T. Lord, both of Erie, Pa., U. S. A.
- 407,763. **Rubber Thread.** Soc. Italiana Pirelli and U. Pestalozza, both of Milan, Italy.
- 407,834. **Relief Printing Surface.** C. W. Bennett, Douglaston, L. I., N. Y., U. S. A.

407,891. **Depositing Rubber Articles from Dispersions.** R. F. McKay, Birmingham. (International Latex Processes, Ltd., St. Peter's Port, Channel Islands.)

408,042. **Upholstery Padding.** Moulded Hair Co., Ltd., and J. A. Howard, both of London.

CHEMICAL

United States

1,963,084. **Accelerator.** H. A. Gardner, Washington, D. C., and L. P. Hart, Clarendon, Va., assignors to Henry A. Gardner Laboratory, Inc., Washington, D. C.

1,963,339. **Air Vulcanizable Rubber Compound.** P. N. Sylvester, S. Weymouth, Mass., assignor, by mesne assignments, to Colvulc Rubber Co., a corporation of Mass.

1,963,497. **Paint Conditioning Compound.** L. S. Larsen, St. Paul, Minn.

1,963,511. **Brake Lining Compound.** A. T. K. Tseng, Detroit, Mich., and A. B. Kempel and R. Schar, assignors to Rex-Hide Rubber Mfg. Co., all of E. Brady, Pa.

1,964,380. **Adhesive Cement.** L. G. Copes, Bayonne, N. J., assignor to Gold Dust Corp., New York, N. Y.

1,964,682 and 1,964,683. **Rubber Pigment.** J. W. Ayers, assignor to C. K. Williams & Co., both of Easton, Pa.

1,964,771. **Vulcanized Latex Product.** M. O. Schur, assignor to Brown Co., both of Berlin, N. H.

1,964,806. **Shoe Bottom Filler.** H. Barnett, Leicester, England, assignor to United Shoe Machinery Corp., Paterson, N. J.

1,964,848. **Cement.** T. J. Fairley, Alexandria, assignor, by direct and mesne assignments, of $\frac{1}{2}$ to W. J. Hunter and $\frac{1}{2}$ to M. P. Hunter, both of Shreveport, all in La.

1,964,979 and 1,964,980. **Colored Rubber Product.** H. Eichwede, Frankfurt a. M.-Hochst, Germany, assignor to General Aniline Works, Inc., New York, N. Y.

1,965,139. **Accelerator.** J. H. Fentress, Norfolk, Va., assignor to Rubber Service Laboratories Co., Akron, O.

1,965,160. **Accelerator.** W. Scott, Nitro, W. Va., assignor to Rubber Service Laboratories Co., Akron, O.

1,965,195. **Container Closure.** L. G. Lange, Passaic, N. J.

1,965,463. **Age Resister.** W. N. Jones, Akron, O., assignor to B. F. Goodrich Co., New York, N. Y.

1,965,815. **Aqueous Dispersion.** H. B. Underwood, Racine, Wis., assignor of $\frac{1}{2}$ to G. K. Franklin, Chicago, Ill.

1,965,948. **Age Resister.** W. L. Semon, Silver Lake Village, O., assignor to B. F. Goodrich Co., New York, N. Y.

1,966,271. **Fireproofing for Rubber.** D. F. Twiss, A. S. Carpenter, and A. E. T. Neale, all of Birmingham, England, assignors to Dunlop Tire & Rubber Corp., Buffalo, N. Y.

1,966,389. **Latex Tapping Compound.** L. J. D. Healy, Milwaukee, Wis., assignor to Lee Hardware Co., Salina, Kan.

1,966,478. **Accelerator.** K. Baur, Ludwigshafen a. Rhine, assignor to I. G. Farbenindustrie A. G., Frankfurt a. M., both in Germany.

1,966,650. **Age Resister.** R. L. Sibley, Nitro, W. Va., assignor to Rubber Service Laboratories Co., Akron, O.

1,967,043. **Adhesive and Surfacing Ma-**

terial. C. Snyder, Yonkers, assignor to Angola Chemical Corp., New York, both in N. Y.

Dominion of Canada

342,326. **Accelerator.** R. Robinson, Oxford, J. S. H. Davies, Crumpsall, and H. M. Bunbury and W. J. S. Naunton, both of Prestwich, co-inventors, all in England.

342,835. **Accelerator.** Rubber Service Laboratories Co., Akron, O., assignee of R. L. Sibley, Nitro, W. Va., both in the U. S. A.

342,860. **Plastic Composition.** Rubber Cement Products, Ltd., London, assignee of A. E. Bond, Seven Kings, inventor, and W. Andrews, Manchester, assignee of $\frac{1}{2}$ of the interest, all in England.

342,879. **Accelerator.** H. M. Bunbury and W. J. S. Naunton, both of Prestwich, and J. S. H. Davies, Crumpsall, co-inventors, all in England.

343,108. **Accelerator.** A. Skipsey, St. Albans, England.

United Kingdom

406,055. **Sponge Rubber.** A. Mathiesen, Oslo, Norway.

406,697. **Rubber Composition.** A. Skipsey, St. Albans.

407,234. **Latex Process.** R. F. McKay, Birmingham. (International Latex Processes, Ltd., St. Peter's Port, Channel Islands.)

407,794. **Latex.** International Latex Processes, Ltd., St. Peter's Port, Channel Islands, and E. A. Murphy and R. G. James, both of Birmingham.

408,063. **Elastic Resin.** G. T. Morgan and E. L. Holmes, both of Teddington.

408,130. **Bandage.** Firestone Tyre & Rubber Co., Ltd., Brentford, assignee of C. H. Dockson.

408,213. **Treating Textiles.** U. Pestalozza and Soc. Italiana Pirelli, both of Milan, Italy.

408,232. **Coloring Rubber.** J. Y. Johnson, London. (I. G. Farbenindustrie A. G., Frankfurt a. M., Germany.)

Germany

599,920. **Vulcanized Rubber Solutions.** N. Lebedenko and M. Naphtali, both of Berlin-Wilmersdorf, N. Kroll, Berlin-Adlershof, and H. Meyer, Kiel.

600,647. **Conversion of Fatty Oils into Vulcanizable Products.** Imperial Chemical Industries, Ltd., London, England. Represented by A. Bohr and H. Fincke, both of Berlin.

600,783. **Porous and Microporous Objects from Vulcanized Rubber.** Dunlop Rubber Co., Ltd., London, England, and Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands. Represented by C. Wiegand, Berlin.

601,231. **Antiager.** Rubber Service Laboratories Co., Akron, O., U. S. A. Represented by F. Doring and H. Boeters, both of Berlin.

601,253. **Softener.** I. G. Farbenindustrie A. G., Frankfurt a. M.

601,255. **Vulcanized Rubber.** Naugatuck Chemical Co., Naugatuck, Conn., U. S. A. Represented by C. Wiegand, Berlin.

GENERAL

United States

19,226 (Reissue). **Pneumatic-Tired Railway Wheel.** A. J. Michelin, de-

ceased, late of Paris, by M. J. J. Michelin, executor, Clermont-Ferrand; said A. J. Michelin, assignor to Michelin & Cie., Clermont-Ferrand, all in France.

1,963,101. **Container and Spring Clamp.** E. M. Sawtelle, New York, N. Y., assignor to Vacuum Seal Co., Inc., a corporation of N. Y.

1,963,102 and 1,963,103. **Capping Machine.** J. E. Sharp, New Kensington, and M. M. Kipfer, Arnold, assignors to Aluminum Co. of America, Pittsburgh, all in Pa.

1,963,123. **Storage Battery Electrolyte Low Level Indicator.** J. A. Flynn, New York, N. Y.

1,963,162. **Heat-Insulated Receptacle.** A. D. Whipple, Alexandria, Ind., assignor to Mantle Lamp Co. of America, Chicago, Ill.

1,963,164. **Eyeset for Doll's Head.** D. Zaiden, Brooklyn, assignor of $\frac{1}{4}$ to I. Kaufman and $\frac{1}{4}$ to S. Kaufman, both of Forest Hills, and $\frac{1}{4}$ to J. Kaufman, Brooklyn, all in N. Y.; A. Zaiden, executrix of said D. Zaiden, deceased.

1,963,226. **Rubber Cord.** C. Cosman, Elberfeld, Germany.

1,963,326. **Typewriter Eraser Holder.** A. K. Greenwood, Winchester, Mass.

1,963,334. **Slip-on Garment.** M. D. Neilson, Minneapolis, Minn.

1,963,357. **Abrasive Roll.** E. A. Filley, Akron, O., assignor to Wingfoot Corp., Wilmington, Del.

1,963,389. **Tooth Brush.** R. W. Vardeman, Independence, assignor to Dr. Vardeman Laboratories, Inc., Kansas City, both in Mo.

1,963,474. **Foot Comfort Pad.** W. M. Scholl, assignor to Scholl Mfg. Co., Inc., both of Chicago, Ill.

1,963,482. **Shoe Treeing Apparatus.** O. Young, assignor to Chapal Donner Corp., both of Newark, N. J.

1,963,560. **Sponge Rubber Article.** P. Ritter, Jr., Brooklyn, N. Y.

1,963,637. **Windshield Wiper Blade Guard.** A. C. Weidanz, E. Elmhurst, N. Y.

1,963,755. **Electrical Resistance.** E. D. Mead, Caldwell, N. J., assignor to Bell Telephone Laboratories, Inc., New York, N. Y.

1,963,813. **Elastic Thread.** G. S. Van Voorhis, Northampton, assignor to United Elastic Corp., Easthampton, both in Mass.

1,963,856. **Printer's Roller.** R. R. Lewis, Freeport, and A. J. Weiss, Brooklyn, assignors to Vulcan Proofing Co., New York, all in N. Y.

1,963,886. **Dropper.** Le R. Chilson, assignor to Taylor Instrument Cos., both of Rochester, N. Y.

1,963,927. **Drag Link.** B. W. Twyman, Indianapolis, Ind., assignor to Hanum Mfg. Co., Milwaukee, Wis.

1,963,932. **Rail Car Wheel.** F. A. Bollinger, assignor to Firestone Tire & Rubber Co., both of Akron, O.

1,963,939. **Antiskid Device.** M. C. Dodge, assignor to Columbian Rope Co., both of Auburn, N. Y.

1,963,940. **Flexible Bearing.** J. F. Duffy, assignor to Duffy Mfg. Co., both of Holland, Mich.

1,963,941. **Inspection Door.** J. F. Duffy, assignor to Duffy Mfg. Co., both of Holland, Mich.

1,964,008. **Ball.** F. T. Roberts, assignor to Hamilton Trust Co., both of Paterson, N. J.

1,964,105. **Dual-Tired Wheel Load Equalizer.** E. L. Bowen, Barstow, Md.

- 1,964,145. **Hydrometer Float.** L. Edelmänn, assignor to E. Edelmänn & Co., both of Chicago, Ill.
- 1,964,236. **Printing Unit.** L. J. Welch, Chicago, Ill.
- 1,964,286. **Wringer Safety Device.** H. P. Hamelman, Marlton, N. J.
- 1,964,310. **Internal Combustion Engine Electric Starter.** J. Bethenod, Paris, assignor to Societe de Paris & du Rhone, Lyon, both in France.
- 1,964,348. **Floor Covering.** J. R. Gam-meter, Akron, O.
- 1,964,387. **Bathtub Shower.** S. Sena, Hartford, Conn.
- 1,964,425. **Fishing Rod Attachment.** E. L. Bowman, assignor of 1/2 to J. H. Spettigue, both of Attleboro, Mass.
- 1,964,431. **Freezing Tray.** H. D. Geyer, Dayton, O., assignor, by mesne assignments, to General Motors Corp., Detroit, Mich.
- 1,964,432. **Resilient Engine Mount.** H. D. Geyer, Dayton, O., assignor, by mesne assignments, to General Motors Corp., Detroit, Mich.
- 1,964,510. **Belting.** E. A. Goetter, assignor to Fairbanks, Morse & Co., both of Chicago, Ill.
- 1,964,604. **Acoustic Device.** A. E. Swickard, E. Orange, N. J., assignor to Bell Telephone Laboratories, Inc., New York, N. Y.
- 1,964,623. **Sanitary Automatic Server.** E. P. Durand, Huntington, N. Y.
- 1,964,655. **Ice Bag.** E. Williamson, Coral Gables, Fla.
- 1,964,672. **Clutch Facing.** C. F. Ogren, assignor to Thermoid Rubber Co., both of Trenton, N. J.
- 1,964,735. **Vehicle Suspension.** H. A. Knox, Davenport, Iowa, and T. H. Nixon, Gettysburg, Pa.
- 1,964,758. **Nursing Bottle Holder.** A. N. Guerin, San Bruno, Calif.
- 1,964,903. **Composite Article.** B. Bronson, assignor to Ohio Rubber Co., both of Cleveland, O.
- 1,964,904. **Heating Pad Connection.** J. H. Browne, E. Liverpool, O.
- 1,964,908. **Tire.** S. V. Fullaway, Omaha, Neb.
- 1,965,009. **Finger Stall Toothbrush.** R. G. Stevens, Chicago, Ill.
- 1,965,058. **Vehicle Pneumatic Wheel.** A. L. Seabra, Sao Paulo, Brazil.
- 1,965,137. **Vehicle-Brake Shield.** G. R. Cunningham, Akron, assignor to Paine-Cunnington Co., Cleveland, both in O.
- 1,965,157. **Sifting Screen Cleaner.** H. B. Rice, assignor, by direct and mesne assignments, to Vacuum Bolt-ing Cloth Cleaner Corp., both of Houston, Tex.
- 1,965,248. **Elastic Fabric.** T. F. Moore, assignor to George C. Moore Co., both of Westerly, R. I.
- 1,965,425. **Toy Gun.** D. McDonald, Birmingham, Ala.
- 1,965,426. **Hose Connector.** L. R. Nelson, Peoria, Ill.
- 1,965,484. **Resilient Wheel.** J. K. Bables, Houston, Tex.
- 1,965,496. **Roller Blind Mechanism.** C. J. Hesse, Footscray, Victoria, Australia.
- 1,965,497. **Milking Machine.** H. H. Johnson, Palmerston North, New Zealand.
- 1,965,511. **Exerciser.** C. W. Preston, Kingston-upon-Hull, England.
- 1,965,558. **Foot Tub.** C. L. Weirich, assignor to C. B. Dolge Co., both of Westport, Conn.
- 1,965,560. **Vaginal Atomizer.** R. O. Preston, Topeka, Kan.
- 1,965,594. **Rubber Cord Connector.** H. Hubbell, Jr., Bridgeport, Conn.
- 1,965,773. **Nonslip Hat Holder.** I. Jacobs, Chicago, Ill.
- 1,965,800. **Syringe Case.** H. W. Foster, Pine Bluff, Ark.
- 1,965,860. **Combination Foundation Garment.** G. E. Rutledge, assignor to Vassar Swiss Underwear Co., both of Chicago, Ill.
- 1,965,995. **Raincoat.** F. R. Tripp, Bristol, England.
- 1,966,101. **Scourer.** T. W. Miller, assignor to Faultless Rubber Co., both of Ashland, O.
- 1,966,135. **Shoe Resilient Grip.** M. Reh, New York, N. Y.
- 1,966,160. **Packing Ledge.** F. M. Buchring, Edsberg, Sweden.
- 1,966,198. **Fly Swatter.** H. W. Buhler, Gloucester, Mass.
- 1,966,293. **Heel Seat Cushioning Attachment.** G. H. Gillis, Fitchburg, Mass.
- 1,966,369. **Fountain Pen.** S. G. Yates, N. Bergen, and D. Kahn, Woodcliff, assignors to David Kahn, Inc., N. Bergen, all in N. J.
- 1,966,398. **Waist and Attaching Means.** E. G. Sonnet, New York, N. Y.
- 1,966,428. **Pneumatic Tire Valve.** W. P. Brown, Minneapolis, Minn.
- 1,966,450. **Track for Track-Laying Vehicles.** H. A. Knox, Davenport, Iowa.
- 1,966,465. **Mat.** L. F. Schuhmacher, Meade, Kan., assignor to Schuhmacher & Schneider Patents, Inc., Chicago, Ill.
- 1,966,506. **Valve Stem Captive Cap.** C. B. Knudsen, Mamaroneck, assignor to Cap Coupler Corp., New York, both in N. Y.
- 1,966,512. **Washboard.** E. D. Misner, assignor to Steel Materials Co., both of Detroit, Mich.
- 1,966,614. **Feeding Bottle Valve.** A. A. T. Creser, Richmond, and G. B. Baker, London, both in England.
- 1,966,651. **Undergarment.** H. B. Snader, Reading, Pa.
- 1,966,709. **Garment Supporter.** C. E. Byrne, Holliston, Mass.
- 1,966,719. **Insole.** H. Härtl, Berlin, Germany.
- 1,966,767. **Ink Pad.** A. Reich, Vienna, Austria.
- 1,966,789. **Face Patter.** M. P. Dibble, New York, N. Y.
- 1,966,819. **Slugging Liquids through Conduits.** J. L. Irvin, assignor to Gulf Pipe Line Co., both of Houston, Tex.
- 1,966,822. **Hand-Carried Traffic Signal.** I. Lieb, Del Monte, Calif.
- 1,966,922. **Grave Marker.** E. A. Coleman, St. Louis, Mo.
- 1,966,954. **Fly Swatter.** S. G. Monroe and F. Shepherd, both of Akron, O.
- 1,967,037. **Fragile Article Packing.** L. Mann, Mount Vernon, assignor to Holed-Tile Packing Corp., New York, both in N. Y.
- 1,967,138. **Balloon Spinner.** A. L. Wiener, Cleveland, O.
- 1,967,142. **Belting.** J. M. Bierer, Waban, and T. M. Knowland, Watertown, assignors to Boston Woven Hose & Rubber Co., Cambridge, all in Mass.
- 1,967,182. **Centrifugal Pump.** F. B. Allen, Lower Merion Township, Pa., assignor to Allen-Sherman-Hoff Co., a corporation of Pa.
- 342,406. **Windshield Wiper.** Anderson-Co., assignee of J. W. Anderson, both of Gary, Ind., U. S. A.
- 342,442. **Valve Mechanism.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of E. Eger, Detroit, Mich., U. S. A.
- 342,492 and 342,493. **Artificial Board.** St. Clair Rubber Co., Detroit, assignee of C. J. Strobel, Port Huron, both in Mich., U. S. A.
- 342,617. **Brake Fluid.** Hydraulic Brake Co., assignee of A. T. K. Tseng, both of Detroit, Mich., U. S. A.
- 342,648. **Garment Support.** R. Harris, Pelee, Ont., assignee of W. A. Rowland, Stockbridge, Mich., U. S. A.
- 342,656. **Electric Plug Connector.** Belden Mfg. Co., Chicago, assignee of H. H. Wermin, Villa Park, both in Ill., U. S. A.
- 342,658. **Nurser.** F. Brown, Philadelphia, Pa., U. S. A.
- 342,673. **Play Block.** J. H. Doak, Multnomah, Ore., U. S. A.
- 342,787. **Bottle Cap.** Crown Cork & Seal Co., Ltd., Toronto, Ont., assignee of Crown Cork & Seal Co., Inc., assignee of A. H. Warth, both of Baltimore, Md., U. S. A.
- 342,794. **Wire Cable Sheave.** Gallo-way Engineering Co., Ltd., assignee of H. B. Greening, both of Hamilton, Ont.
- 342,864 and 342,865. **Joint.** H. C. Lord, co-inventor with and assignee of T. Lord, both of Erie, Pa., U. S. A.
- 342,950. **Wringer.** Beatty Bros., Ltd., assignee of W. G. Beatty, both of Fergus, Ont.
- 342,968. **Brake Lining.** Canadian Raybestos Co., Ltd., Peterborough, Ont., assignee of C. T. Begg, Bridgeport, Conn., U. S. A.
- 342,975. **Fountain Pen.** Chilton Pen Co., Inc., Long Island City, N. Y., assignee of M. G. Sypher, Jersey City, N. J., both in the U. S. A.
- 342,985. **Emergency Tire.** Gerben-Hecht Holding Corp., assignee of C. Gerben, both of New York, N. Y., U. S. A.
- 343,027. **Electric Cord.** Sinfra A. G., St. Gallen, Switzerland, assignee of F. Hanff, Berlin-Charlottenburg, Germany.
- 343,028. **Nut Lock.** La Société Anonyme des Ateliers Gamain, assignee of E. E. L. Boudet, both of Liège, Belgium.
- 343,053. **Foot Massager.** W. F. Hetman, assignee of W. C. Martin, both of Chicago, Ill., U. S. A.
- 343,091. **Tire Casing and Tube.** S. C. Haynes, Wilmington, Calif., U. S. A.
- 343,092. **Rail Vehicle Resilient Wheel.** C. F. Hirshfeld, Detroit, Mich., U. S. A.
- 343,112. **Tire.** C. E. Veil-Picard, Levallois-Perret, Seine, France.
- 343,167. **Centrifuge Bearing.** De Laval Separator Co., New York, assignee of V. J. Gilmore, Wappingers Falls, both in N. Y., U. S. A.
- 343,168. **Valve Stem.** Dill Mfg. Co., Cleveland, assignee of A. E. Bronson, Shaker Heights, both in O., U. S. A.
- 343,251. **Textile Device.** H. Dreyfus, London, assignee of R. H. J. Riley, R. P. Roberts, and T. C. Barnett, all of Spondon, co-inventors, all in England.

United Kingdom

- 405,693. **Parachute.** R. C. Quilter, Woodbridge, and J. Gregory, London.

Dominion of Canada

- 342,348. **Boiler Plug.** W. J. Crawford, Niagara Falls, Ont.

406,170. **Hot Water Bottle.** J. E. Waber, Vienna, Austria.
 406,352. **Vehicle Bumper.** C. D. Terry, Birmingham.
 406,397. **Cycle Handle.** Universal Rubber Paviers, Ltd., and L. Gaisman, both of Manchester.
 406,410. **Tubing.** H. J. Thornton and F. L. Witcomb, both of Leicester.
 406,440. **Metal Coating Device.** General Electric Co., Ltd., London, assignee of Patent-Treuhand-Ges. für Elektrische Glühlampen, Berlin, Germany.
 406,449. **Truck Axle Carrier.** A. J. Niblett, Reading, and Compressed Rubber Products, Ltd., Guildford.
 406,477. **Loading Aircraft.** Fairey Aviation Co., Ltd., Hayes, and D. L. H. Williams, Ickenham.
 406,522. **Annealing Box.** Allmanna Svenska Elektriska Aktiebolaget, Västerås, Sweden.
 406,523. **Blasting Cartridge.** Safety Mining Co., Chicago, Ill., U. S. A.
 406,564. **Heel.** C. Zucchetti and H. Rothschild, both of Milan, Italy.
 406,589. **Vehicle Endless Track.** A. Keggresse, Courbevoie, France.
 406,599. **Motorcycle Chain Case.** Norton Motors, Ltd., and C. G. Smith, both of Birmingham.
 406,613. **Door Fastening.** Pressed Steel Co. of Great Britain, Ltd., Oxford. (Ambi-Budd Presswork Ges., Berlin, Germany.)
 406,739. **Phonographic Recorder.** Electrical Research Products, Inc., New York, assignee of G. R. Yenzer, Woodhaven, both in N. Y., U. S. A.
 406,798. **Paper Paster.** A. Thomas, Staines.
 406,839. **Cycle Pedal.** Enfield Cycle Co., Ltd., and F. W. Smith, both of Redditch.
 406,897. **Sock Suspender.** L. Woods, St. Louis, Mo., U. S. A.
 407,075. **Reciprocating Cylinder Pump.** W. M. Rolph, London.
 407,150. **Bat Handle.** W. S. Buntine, N. Melbourne, Australia.
 407,171. **Golf Tee.** J. A. L. Nixon, Dundee, Scotland.
 407,210. **Game Apparatus.** R. Seavers, Liverpool.
 407,285. **Cocoon Fiber Mat.** Aldrich Bros., Ltd., and W. R. Bibby, both of Diss.
 407,324. **Golf Bag Stand.** L. M. E. Dent and A. MacKenzie, both of London.
 407,346. **Hinge.** G. B. Riley, London.
 407,353. **Dart.** G. Briggs and H. P. Cochran, both of London.
 407,430. **Ice-Making Tray.** L. G. Copeman, Flint, Mich., U. S. A.
 407,436. **Saddle.** H. and J. Jelley, both of Birmingham.
 407,442. **Shock Absorber.** W. McNeil, Sydney, Australia.
 407,443. **Vacuum-Jacketed Container.** W. R. F. Lunt, Durban, South Africa.
 407,445. **Garment.** L. L. Irvin, Letchworth.
 407,501. **Tube Connector.** New Croydon Rubber Co., Ltd., and T. O. Greenfield, both of London.
 407,538. **Swimming Suit.** Jantzen Knitting Mills, Portland, Ore., U. S. A.
 407,557. **Loom.** A. H. Stevens, London. (Bigelow-Sanford Carpet Co., Inc., Thompsonville, Conn., U. S. A.)
 407,571. **Safety Razor.** Tark Electric Razor Co., Inc., and S. Shaler, both of Long Island City, N. Y., U. S. A.
 407,597. **Door Draught Excluder.** C.

H. Young, Brighthouse, and S. H. Ambler and G. Young, both of Lightcliffe.
 407,601. **Shirt.** J. L. Shaw, London.
 407,625. **Window Fastening.** J. A. Flanagan, Moyvalley, Co. Kildare, Irish Free State.
 407,668. **Vehicle Bumper.** A. Sinibaldi, Milan, Italy.
 407,688 and 407,705. **Resilient Mounting.** H. C. Lord, assignee of T. Lord, both of Erie, Pa., U. S. A.
 407,751. **Inkwell.** W. Gibson, Liverpool.
 407,766. **Electric Safety Lamp.** C. Rave, Luckenwalde, Germany.
 407,774. **Flexible Unjointed Hinge.** A. J. Bruyndonckx, Brussels, Belgium.
 407,788. **Engine Mounting.** L. Thiry, Huy, Belgium.
 407,818. **Hand Wheel.** American Hard Rubber Co., New York, N. Y., assignee of G. J. Hartung and K. G. Siedschlag, both of Akron, O., all in the U. S. A.
 407,842. **Trousers.** T. Vaccaro, Los Angeles, Calif., U. S. A.
 407,879. **Sheet Deliverer.** Faber & Schleicher A. G., Offenbach a. M., Germany.
 407,895. **Trouser Supporter.** G. H. Powe and H. Powe, Ltd., both of London.
 407,924. **Electric Radiator.** J. H. G. P., A., and K. M. Taylor, all of Huddersfield.
 407,974. **Engine Mounting.** D. Napier & Son, Ltd., and C. W. Sewell, both of London.
 408,018. **Lathe.** D. Gilson & Co., Ltd., and A. F. J. Wright, both of Walthamstow.
 408,039. **Bathing Cap.** I. and L. Dorogi and Dr. Dorogi Es Tarsa Gummigyar R. T., all of Budapest, Hungary.
 408,053. **Rubber-Coated Metal Article.** J. H. Young, Mt. Lebanon, and H. H. Robertson Co., Pittsburgh, both in Pa., U. S. A.
 408,180. **Web Steamer.** E. Gessner A. G., Erzgebirge, Germany.

Germany

599,845. **Belt.** K. Scheitlinger, Berlin-Steglitz.
 599,848. **Tires.** Continental Gummi-Werke A.G., Hannover.
 599,925. **Tire.** General Tire & Rubber Co., Akron, O., U. S. A. Represented by G. Bertram and K. Lengner, both of Berlin.
 599,989. **Hose Sprinkler Top.** Rheinische Gummi-Gesellschaft W. Klotz & Co., Dusseldorf.
 601,261. **Toy Figures.** Magyar Ruggyantaarugyar R.S., Budapest, Hungary. Represented by J. Reitstotter, Berlin-Steglitz.

TRADE MARKS

United States

313,550. **Suretite.** Bottle stoppers. E-Z Tite Rubber Co., assignor to E-Z Tite Rubber Co., both of Seattle, Wash.
 313,608. Representation of a blue and gold flag. Storage batteries and spark plugs. Goodyear Tire & Rubber Co., Akron, O.
 313,610. **Bambino.** Parlor baseball game. Bambino Products Co., Chicago, Ill.
 313,658. **Biltrite.** Heels. Panco Rubber Co., assignor to Panther-Panco Rubber Co., Inc., Chelsea, Mass.
 313,779. **Pla-Shu.** Canvas rubber-

soled shoes. Servus Rubber Co., Rock Island, Ill.
 313,781. **Greater Service.** Tire and tube repair kits. W. H. Barber Co., Minneapolis, Minn.
 313,809. Label containing representation of a knight on horseback carrying a flag, and the words: "Air Tested . . . Sterilized Red Knight Prophylactics." Prophylactic rubber articles. S. G. Boone, doing business as Boone Drug Sundries Co., Cincinnati, O.
 313,814. **Snowtex.** Prophylactic rubber sheaths. Snowden-Mize Drug Co., Atchison, Kan.
 313,958. **Dunlopillo.** Cellular rubber. Dunlop Tire & Rubber Corp., Buffalo, N. Y.
 313,971. **Holland Tube.** Tubes. Lion Tire Co., Inc., New York, N. Y.
 313,974. **Ru-ber-oid.** Insulating tape. Ruberoid Co., New York, N. Y.
 314,013. Representation of a diamond throwing off rays. Surgical and dental syringes. MacGregor Instrument Co., Needham, Mass.
 314,052. Representation of a man in uniform carrying a box on which appears the word: "Service;" above this representation, the word: "Philco;" and below it, the words: "Philco Rubber Co., Phila., Pa., U. S. A." Tire and tube repair kits. Philco Rubber Co., Philadelphia, Pa.
 314,154. **Dublcchek.** Valve caps. A. Schrader's Son, Inc., Brooklyn, N. Y.
 314,171. **Duracode.** Insulated wire. Anaconda Wire & Cable Co., New York, N. Y.
 314,237. **Emerald Cord.** Hose and belting. Goodyear Tire & Rubber Co., Akron, O.
 314,242. **Unblowable.** Tires. Sears, Roebuck & Co., Chicago, Ill.
 314,311. Representation of a dirigible on which appear the words: "Non-Tear Balloon Cloth." Cloth of various materials including rubber. Wellington, Sears Co., New York, N. Y.
 314,358. Circle containing the letter: "R." Shaving brushes. Rubber & Celluloid Products Co., Newark, N. J.
 314,361. **National Tire.** Tires, tubes, and patches therefor, belting, valve bases, hose, and tire flaps. National Tire Stores, Inc., Denver, Colo.
 314,369. **Rubber-Neck.** Inner tubes. Cleveland Rubber, Inc., Cleveland, O.
 314,381. Representation of a mounted guard before an arch, above the word: "Shelters." Sport and raincoats. United States Rubber Co., New York, N. Y.
 314,490. **The Massagic Foot Massaging Cushion Shoe.** Footwear. Marion Shoe Co., Marion, Ind.
 314,498. Label containing the word: "Adruco." Battery box covers and vent plugs. Advance Rubber Co., Akron, O.
 314,516. Rectangle formed of broken lines, containing the word: "Claro." Crude rubber in sheets. Continental Rubber Co. of New York, New York, N. Y.
 314,564. **Porous Rain Hose.** Hose. Hamilton Mfg. Co., Hamilton, Mich.
 314,568. **Microbeads.** Carbon, bone, and lamp black. Binney & Smith Co., New York, N. Y.
 314,589. Representation of a pair of scales, the joining bar of which holds a pair of slippers and a crest containing the letters: "C H." and between the scales appear the words: "Balance Built." Footwear. Corbin-Holmes Shoe Co., Hudson, Mass.
 (Continued on page 78)

Market Reviews

CRUDE RUBBER

THE gains of from 80 to 90 points on the rubber exchange last month were due mostly to outside influences although traders are optimistic over the future of prices especially toward the year-end when restriction quotas will have reduced normal output to about 70%. Public participation in the rubber market is also encouraging.

On August 23 the *New York Journal of Commerce* stated: "The broader participation of the public in rubber is perhaps the outstanding observation. It is an era of commodity speculation at the expense of stocks and bonds. Rubber lends itself well to this changed style of speculation as it apparently has a future, what with the much-publicized restriction scheme in vogue. On the Commodity Exchange, moreover, it is always a broad market, with an accurate picture of prices presented at any given time during the trading session."

The recent stagnant tone of the stock market lends color to this observation.

Many factors influenced the markets during August. After the assassination of Chancellor Dollfuss, rumors of war stirred the markets; crop reports by the Department of Agriculture indicate the smallest grain and cotton crops in 30 years; and the nationalization of silver with the consequent weakening of the pound and the dollar revived inflation talk.

In the tire industry the old wage disputes were again to the fore, and pleas were made to the NRA administrators to avert another tire-price war by permitting a 10% increase in tire prices. Mail-order tires continue to be the main point of difference.

News from the Far East is encouraging. Native production is gradually being regulated according to the restriction agreement, and producers seem satisfied with the prices they are receiving. Exports were high in July, and consumption dropped off, but traders are satisfied that future months will improve.

Automobile production in July was slightly under June, but far above July, 1933. Sales picked up somewhat, leading to a prediction that 1935 models would be delayed as long as 1934 cars were making a good showing.

In the Outside Market business was dull. Manufacturers bought little since they hold almost a year's supply of rubber. Foreign sales were fairly good, with buyers watching the primary markets for an indication of a trend.

The rubber market, in short, shows optimism, and as the restriction scheme

demonstrates its efficiency, prices will undoubtedly be firmer. The only danger is a too-rapid rise, but every effort will be made to avoid the false values following the last restriction scheme.

Week ended July 28. The rubber market was quiet up to Thursday, when heavy liquidation in sympathy with the break in stocks sent prices down 29 to 45 points. Friday's session was steadier, although losses for the week were from 34 to 45 points.

October closed at 14.57¢, compared with 14.95¢ the week before; December 14.81 against 15.20; January 14.93 against 15.28; March 15.15 against 15.58; and May 15.41 against 15.86.

News was meager. Speculative support was lacking in the market so that rubber took its cue from stocks and grains for most of the week, which accounted for the loss.

The General Motors report shows a satisfactory increase in sales of automobiles. "During the second quarter ended on June 30, 1934," said Alfred P. Sloan, Jr., president, "General Motors dealers in the United States delivered to consumers 314,449 cars and trucks, compared with 259,395 in the same quarter of 1933, a gain of 21.2%. Sales by General Motors operating divisions to dealers in the United States during this quarter amounted to 344,597 cars and trucks, compared with 260,178 in the corresponding quarter a year ago, a gain of 32.4% . . ."

"For the 6 months ended on June 30, 1934, dealers in the United States delivered to consumers 494,972 cars and trucks, compared with 399,764 in the corresponding period of 1933, a gain of 23.8% . . ."

The Department of Commerce stated that retail financing of new passenger automobiles was 58.3% higher in June than it was a year ago. The report goes back to 1929, as follows: June, 1934, 58.3% higher than June, 1933; 80.9% above June, 1932; 11.7% above June, 1931; 25.0% better than June, 1930; and 44.2% less than in June, 1929.

Hand-to-mouth buying was done by manufacturers in the Outside Market, with little shipment business in evidence. Prices were steady until Thursday, when the break in Exchange prices was followed outside. The close was stronger, with July ribbed smoked sheets selling at 14 $\frac{3}{4}$ ¢, compared with 14 $\frac{1}{4}$ ¢ last week; August-September 14 $\frac{1}{2}$ ¢ against 14 $\frac{1}{4}$ ¢; October-December 14 $\frac{3}{4}$ ¢ against 15 $\frac{1}{4}$ ¢; and January-March 15 $\frac{1}{2}$ ¢ against 15 $\frac{1}{4}$ ¢.

Week ended August 4. Prices, much more buoyant this week with a renewal

of speculative buying, gained 65 to 70 points. News on which to support a rise was lacking, but strength in London was reflected here. The Far East census figures were the only statistics to appear. Small estates accounted for 3,691 tons, large estates 20,513 tons; estate stocks were 13,493 tons, and dealers' stocks 7,979.

October was 15.22¢ at the close, compared with 14.57¢ the week before; December 15.47 against 14.81; January 15.61 against 14.93; March 15.85 against 15.15; and May 16.06 against 15.41.

The following Singapore cable was received about the June census figures: "While the market expected some decrease, the production figures of estates below 100 acres caused general surprise. Although it is thought that the decrease may have been caused by sale of export coupons on estates of over 100 acres and to Chinese speculators, the coupons having not yet been turned into rubber, the opinion prevails that there is still some discrepancy. The actual sale of coupons does not affect production as a whole because it represents only a transfer, the small holder being content to receive payment for the coupon without having to work his holding. An authoritative London source states that it may be assumed that the small holder production may be more than it appears owing to the use of some of the current production for the replenishment of unrecorded private stocks exhausted at the end of May."

At an NRA hearing this week it was proposed that minimum tire prices be increased by 10% to avert another price war. It was asserted that the Big Four were driving the small dealers out of business and aiming at a monopoly. Opinion was not uniform on the proposal: some wanted the minimum price eliminated; others wanted the present scale at a higher level; while some declared that the differential proposed, which would apply only to tires sold from mail catalogs, meant nothing at all. The present controversy is an outgrowth of the price war threatened on May 3 and put off on the instigation of General Johnson. From the diversity of opinion expressed at the hearing, the bitterness of the tire price competition has not abated in the least.

Automobile production dropped sharply last week, and the expected July total of 275,000 units probably will not materialize. Output was 59,412 units, against 75,829 for the preceding week, and 64,425 for the same week a

year ago. Ford cut about 2,000 units, and Chrysler and Chevrolet, smaller amounts. August production is estimated at 225,000 units, or about 20% below July. Last year 240,000 units were produced in August. Manufacturers are said to be curtailing output to meet dealers' requirements as closely as possible, although no attempt has yet been made to cut stocks in the hands of dealers.

In the Outside Market business was at a standstill early in the week, but brightened considerably at the weekend, and traders reported a fair volume. Prices improved also.

September ribbed smoked sheets closed at 15½¢, compared with 14½¢ last week; October-December 15½¢ against 14¼¢; and January-March 15¼¢ against 15¼¢.

Week ended August 11. Outside factors bolstered rubber prices to new high levels for the week, with speculators and foreign buyers taking most of the contracts. Volume jumped to 7,450 tons on Monday, 10,800 on Tuesday, and 11,100 on Thursday. The rise in cottons and grains had its effect, but the principal cause of higher prices was the nationalization of silver, announced by President Roosevelt. The pound rose to \$5.10 upon the news. Rubber prices followed those of silver except on Friday when speculators took profits. Net gains for the week were from 58 to 71 points.

September closed at 15.63¢, compared with 15.09¢ the week before; October 15.81 against 15.22; December 16.10 against 15.47; January 16.23 against 15.61; March 16.48 against 15.85; and May 16.77 against 16.06.

Under the silver plan the Treasury will issue approximately \$80,000,000 of currency against silver. Holders of

the metal were ordered to turn it in at a price of 50¢ an ounce, with the difference between that and the \$1.29 price quoted, as seignorage charges.

Observers believe that commodity buying this week was due to inflation fears, and the desire to invest in strong commodities such as rubber where the restriction agreement seems to vouch for a steady price level.

Natives are said to be satisfied with the price they are at present receiving for silver, and the Dutch East Indies government reports little difficulty in controlling output since native planters realize now it is to their advantage to carry out the restriction agreements.

Gross Malayan shipments in July rose to 55,090 tons, against 53,282 in June.

Automobile production reached 58,554 units last week, compared with 59,412 the previous week and 57,017 in the same 1933 week. Chevrolet put out 20,000 units, Ford 18,190. The National Automobile Chamber of Commerce estimated production of 194,356 units for July, a drop of 15% under June, but 10% more than in July, 1933. Retail sales declined but slightly so far in August, but indications are that the summer slump will soon become evident. August output is not expected to be so high as for July. The figures given above by the NACC, incidentally, excludes Ford's since he is not a member of the chamber.

An indication of how the automobile business has fared this year is given in the General Motors statement for July. Sales to consumers in that month were 101,243 units, against 112,847 in June, and 87,298 in July, 1933. For the first 7 months sales were 596,215, compared with 487,062 in 1933, or the best since July, 1929. Sales to dealers for

7 months totaled 884,600 units, compared with 605,540 last year. Plymouth sales were about 700 cars more than in June.

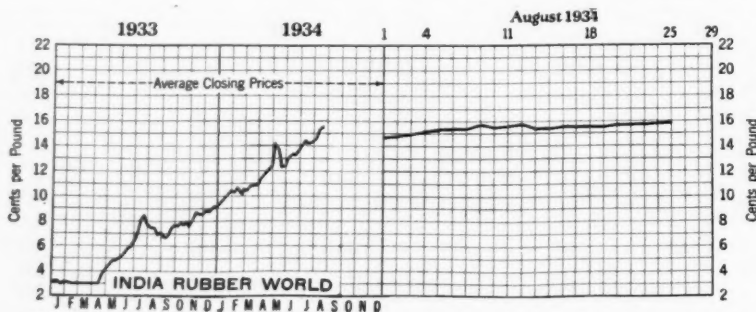
Manufacturers have a strong campaign this year, with reduced prices and improved cars, but one large manufacturer stated the industry still lacks stabilization, and the fault lies partly with the manufacturers' and retailers' codes imposed by the NRA.

New York Quotations

New York outside market rubber quotations in cents per pound

	Aug. 26, 1933	July 25, 1934	Aug. 27, 1934
Plantations			
Rubber latex, normal gal. 72		60	58½
Sheet			
Ribbed, smoked, spot 7½	14½/14½	15½/15½	16/16½
Oct.-Dec. 7½/7½	15½	16½/16½	16½/16½
Jan.-Mar. 7½/7½	15½	16½/16½	16½/16½
Apr.-June 7½/8	.....	16½/16½	16½/16½
Crepe			
No. 1 thin latex, spot. 7½/8½	16½/16½	16½/17½	17½/18
Oct.-Dec. 8/8½	16½	17½/18	17½/18½
Jan.-Mar. 8½/8½	17½	18/18½	18½/19
Apr.-June 8½/8½	.....	18/18½	18½/19
No. 3 Amber, spot 6/6½	12/12½	12½/12½	12½/12½
No. 1 Brown 6½/6½	12½/12½	12½/12½	12½/12½
Brown, rolled ... 5½/5½	9½/9½	9½/9½	9½/9½
Paras			
Upriver fine 9½	11	11	
Upriver fine *12½	*14½	*15	
Upriver coarse ... 9½	12	7½	
Upriver coarse ... 9½	*12	*11	
Islands fine 9	10	10½	
Islands fine *12½	12	*14½	
Acre, Bolivian fine 10	12	11½	
Acre, Bolivian fine *13	*15	*15	
Beni, Bolivian 10	11½	11½	
Madeira fine 9½	11	11	
Caucho			
Upper ball 7½	7½	7½	
Upper ball *9½	*10½	*11	
Lower ball 7	7	7	
Pontianak			
Bandjermasin 6	6	6	
Pressed block 13	12	10¾	
Sarawak 6	6	6	
Manicobas			
Manicoba, 30% guar. †5	†8	†8	
Mangabiera, thin sheet ....	..	..
Guayule			
Duro, washed and dried 12	12	12	
Ampar 13	13	13	
Africans			
Rio Nufez 11	10	12	
Black Kassai 10½	9¾	12	
Prime Niger flake. 17½	16	20	
Gutta Percha			
Gutta Siak 13	9½	9¾	
Gutta Soh 15	14½	14¾	
Red Macassar 1.50	1.50	1.50	
Balata			
Block, Ciudad Bolivar 28	52	45	
Manaos block 29	52	42	
Surinam sheets ... 39	47	46	
Amber 42	52	50	

*Washed and dried crepe. Shipments from Brazil. †Nominal.



New York Outside Market—Spot Closing Prices Ribbed Smoked Sheets

New York Outside Market—Spot Closing Rubber Prices—Cents per Pound

	July, 1934										August, 1934													
	23	24	25	26	27	28*	30	31	1	2	3	4*	6	7	8	9	10	11*	13	14	15	16	17	18*
No. 1 Ribbed Smoked Sheet	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	15½	15½	15½	15½	15½	15½	15½	15½	15½	15½	15½	15½
No. 2 Ribbed Smoked Sheet	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½
No. 3 Ribbed Smoked Sheet	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½
No. 4 Ribbed Smoked Sheet	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½	13½
No. 1 Thin Latex Crepe ..	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½
No. 1 Thick Latex Crepe ..	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½
No. 1 Brown Crepe	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½
No. 2 Brown Crepe	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½
No. 2 Amber	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½	12½
No. 3 Amber	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½
No. 4 Amber	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½	11½
Roller Brown	9½	9½	9	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	8¾	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½	9½

* Closed.

In the Outside Market prices rose about $\frac{3}{4}\%$, although business was no better. Silver nationalization and the rise in other markets accounted for the gains. Factory interests are said to be doing little buying even in face of the almost certain rise in prices. The tire factories, of course, have hit their summer dull season.

August ribbed smoked sheets closed at $15\frac{3}{4}\%$ against 15.00% last week; September was $15\frac{1}{2}\%$ against $15\frac{1}{2}\%$; October-December $16\frac{1}{2}\%$ against $15\frac{1}{2}\%$; and January-March $16\frac{1}{2}\%$ against $15\frac{3}{4}\%$.

Week ended August 18. Interest was lacking in futures this week, although a sizable volume changed hands. News was scarce, and the market followed the trend on the Stock Exchange. Consumption statistics were discounted although the drop in imports was welcomed after so many months of excessive shipments. Prices fluctuated on both sides of the market with the week's average from 10 to 22 points lower.

October closed at 15.71% , against 15.81% last Saturday; December 16.00 compared with 16.10 ; January 16.13 against 16.23 ; March 16.38 against 16.48 ; May 16.67 against 16.77 ; and July 16.93 against 17.15 .

The consumption report showed 32,647 long tons taken by United States manufacturers in July, against 40,241 long tons for June, a drop of 18.9% , and 49,614 for July, 1933, a drop of 34.2% . July imports were 41,530 long tons, 16.4% under June and 6.2% under July, 1933. Domestic stocks on July 31 were 364,883 long tons, against 358,149 the month before. The figures were 1.9% over June 30 stocks and 10.8% higher than a year ago. Crude rubber afloat at the month-end totaled 45,869 long tons, against 46,698 a month earlier and 57,435 last year.

June shipments of pneumatic casings were 5,228,251, or 1.9% less than in May and 17.1% less than in June, 1933. Production was 4,342,170, a drop of 2.6% and 28.8% for the same periods. Inventories, at 10,219,360 units, dropped 8.2% under May 31, 1934, but jumped 54.5% above those on June 30, 1933.

Foreign cables indicate that dry rubber will bear an export tax of 20 guilders per 100 kilograms from Batavia beginning September 16. From September 1 the duty will vary from 12 to $16\frac{1}{2}$ guilders.

Sentiment in the trade is better than it has been for some time. United

States stocks, at 364,883 tons, are not far from consumption figures of 401,000 tons for the past year, with the rubber in strong hands. The restriction scheme has not had a fair chance as yet to demonstrate its effectiveness, but all indications are that governments participating in the plan are doing their utmost to carry out their quotas.

Automobile output was maintained by manufacturers of low-priced cars, but was off slightly because of declines by those making more expensive models. Output, according to *Cram's Automotive Reports*, was 57,539 units last week, compared with 58,554 the preceding week and 53,867 in the same 1933 week. From all reports manufacturers will be slow in introducing new models this year because the present ones are still enjoying a fair sale. Demand is dropping, of course, but it has held up well.

In the Outside Market prices were weaker, with trading dull. Manufacturers have large stocks of rubber on hand, and this fact, combined with the ordinary mid-summer lull, makes for small transactions.

August ribbed smoked sheets were quoted at $15\frac{1}{4}\%$ compared with $15\frac{3}{4}\%$ last week; September $15\frac{1}{2}\%$ against $15\frac{1}{2}\%$; October-December $15\frac{1}{2}\%$ against $16\frac{1}{2}\%$; and January-March $16\frac{1}{2}\%$ against $16\frac{1}{2}\%$.

Week ended August 25. Starting and ending the week in an atmosphere of quiet trading, rubber prices changed only slightly. Some liquidation was evident, but the undertone was strong, and quotations were maintained. Talk of inflation was current, owing to the policy of the administration on silver, and the sharp decline in the pound to the lowest levels in some time. News from abroad was lacking except for one or two cables about restriction of native production. Speculators expected a reaction which did not materialize, and the consensus of opinion is rubber is a good buy for the long pull.

Gains of from 13 to 17 points found September at 15.69% , compared with 15.56% the week before; December 16.15 against 16.00 ; January 16.28 against 16.13 ; March 16.55 against 16.38 ; and May 16.82 against 16.67 .

A dispatch from Singapore was summarized by the *Journal of Commerce* as follows: "The controller of rubber warned producers regarding the carry forward condition in the restriction agreement which states that the maximum carry forward of export rights

from one year to the next is limited to not more than 12% of the permissible exportable amount for that control year. This gives a maximum carry forward of 30,774 tons for Malaya for 1934-35, which covers unused estates credits and also dealers' stocks covered by export rights. For the Federated Malaya States alone the corresponding maximum carry forward is 17,080 tons, where as the actual carry forward for the Federated Malaya States alone on July 31 was 29,322 tons. The controller added that unless estates used the provisional credits on a more generous scale and dealers ceased to hold up rubber it will become necessary to restrict the extent to which export credits may be carried forward, and also to limit the stocks held by individual dealers."

The July automobile production figure of 266,575 units was 41,490 less than in June. The total production to date this year has been 1,980,914 units, against 1,219,471 last year, and 980,591 in the first 7 months of 1932.

Production and sales of automobiles at present are slowing down because of seasonal causes, and beginning in September manufacturers are expected to get ready for production of 1935 models although the new cars may be delayed somewhat because present models are selling fairly well.

In the Outside Market the movement of rubber was slow, showing no change from recent weeks. Manufacturers, well supplied, are in no hurry to increase stocks.

Prices were up slightly. August closed at $15\frac{3}{4}\%$ against $15\frac{1}{4}\%$; September $15\frac{1}{2}\%$ against $15\frac{1}{4}\%$; October-December $16\frac{1}{2}\%$ against $15\frac{1}{2}\%$; and January-March $16\frac{1}{2}\%$ against $16\frac{1}{4}\%$.

Paint Fluid Hose

THE application of paints and lacquers by spraying gave rise to the imperative need of hose equipment designed for effective resistance to the disintegrating influence of the solvents. A new type of hose, designed for such service, is made of a composition possessing ample strength and flexibility, but free of the usual tendency to failure by the action of oils and solvents. Couplings hold better on this hose owing to the special quality of the tube composition which retains its firm grip under service conditions. Electric Hose & Rubber Co., Wilmington, Del.

New York Outside Market (Continued)

	August, 1934				
	20	21	22	23	24 25*
No. 1 Ribbed Smoked Sheet.....	15 $\frac{1}{2}\%$	15 $\frac{1}{2}\%$	15 $\frac{3}{4}\%$	15 $\frac{3}{4}\%$	15 $\frac{3}{4}\%$..
No. 2 Ribbed Smoked Sheet.....	14 $\frac{1}{2}\%$	14 $\frac{1}{2}\%$	14 $\frac{3}{4}\%$	14 $\frac{3}{4}\%$	14 $\frac{3}{4}\%$..
No. 3 Ribbed Smoked Sheet.....	14 $\frac{1}{2}\%$	14 $\frac{1}{2}\%$	14 $\frac{3}{4}\%$	14 $\frac{3}{4}\%$	14 $\frac{3}{4}\%$..
No. 4 Ribbed Smoked Sheet.....	14 $\frac{1}{2}\%$	14 $\frac{1}{2}\%$	14 $\frac{3}{4}\%$	14 $\frac{3}{4}\%$	14 $\frac{3}{4}\%$..
No. 1 Thin Latex Crepe.....	16 $\frac{1}{2}\%$	16 $\frac{1}{2}\%$	16 $\frac{3}{4}\%$	16 $\frac{3}{4}\%$	16 $\frac{3}{4}\%$..
No. 1 Thick Latex Crepe.....	16 $\frac{1}{2}\%$	16 $\frac{1}{2}\%$	16 $\frac{3}{4}\%$	16 $\frac{3}{4}\%$	16 $\frac{3}{4}\%$..
No. 1 Brown Crepe.....	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$..
No. 2 Brown Crepe.....	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$..
No. 2 Amber.....	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$..
No. 3 Amber.....	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$	12 $\frac{3}{4}\%$..
No. 4 Amber.....	11 $\frac{1}{2}\%$	11 $\frac{1}{2}\%$	12	12	12 ..
Roller Brown.....	9 $\frac{1}{2}\%$	9 $\frac{1}{2}\%$	9 $\frac{3}{4}\%$	9 $\frac{3}{4}\%$	9 $\frac{3}{4}\%$..

*Closed.

Low and High New York Spot Prices

	August		
	1934*	1933	1932
PLANTATIONS			
Thin latex crepe.....	16 $\frac{3}{4}$ / $17\frac{1}{2}\%$	7 $\frac{1}{2}$ / $8\frac{3}{4}\%$	4 / $5\frac{1}{2}\%$
Smoked sheet, No. 1 ribbed.....	14 $\frac{1}{2}$ / $15\frac{3}{4}\%$	6 $\frac{1}{2}$ / 7%	3 $\frac{1}{2}$ / $4\frac{1}{2}\%$
PARAS			
Upriver fine.....	11 $\frac{1}{2}$ / $11\frac{3}{4}\%$	9 $\frac{3}{4}$ / 11	5 $\frac{3}{4}$ / $7\frac{1}{2}\%$

*Figured to August 27, 1934. All prices in cents per pound.

Monthly Export Restriction Quotas

E. G. Holt¹

ON THE basis of the 1934 territorial allotments of particular rubber producing countries, as stated in the Producers' International Agreement, and on the basis of the announcement by the International Rubber Regulation Committee concerning the percentages of basic quotas that may be exported for 1934, the following statement of monthly quotas for each country has been calculated. The estate-native division for Netherlands East Indies was calculated on the 100-71.5 ratio made effective by the Government. It should be remembered that it is open to the Committee to review their decisions periodically; presumably the announced percentages could be altered before the end of the year.

MONTHLY QUOTAS FOR RESTRICTION GROUPS

	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Malay	42,000	42,000	37,800	37,800	33,600	33,600	29,400
N. E. I. Estate.....	16,248	16,248	16,248	16,248	13,684	13,684	11,974
N. E. I. Native.....	11,609	11,609	11,609	11,609	9,782	9,782	8,559
Ceylon	6,458	6,458	5,812	5,812	5,166	5,166	4,520
India	571	571	514	514	457	457	400
Burma	429	429	386	386	343	343	300
N. Borneo	1,000	1,000	900	900	800	800	700
Sarawak	2,000	2,000	1,800	1,800	1,600	1,600	1,400
Siam	1,250	1,250	1,125	1,125	1,000	1,000	875
Total	81,565	81,565	76,194	76,194	66,432	66,432	58,128

The above given figures accordingly represent the permissible export monthly, of dry rubber, under the terms of the scheme as announced thus far, for each country except Indo-China where restriction is contingent on conditions not now in effect. Note that the Netherlands East Indies has announced 5% restriction and the ex-

port quotas included below for June, July, August, and September; whereas for other regions no restriction from the base quota was effective for June-July, with 10% for August-September. In this table 20% restriction is calculated for all areas in October-November and 30% for December.

The bulletin "Seasonal Trends of Rubber Production" shows that in practically all areas except Java and possibly Borneo and India the rate of production and exports is normally higher in the last half than in the first half of the year and that December ranks among the high months for every area. Consequently the 30% restriction from the agreed base in December

would be really more severe if stated as a percentage of normal December output.

¹ Acting Chief, Leather-Rubber-Shoe Division, Department of Commerce, Washington, D. C.

² Trade Information Bulletin 804, Department of Commerce.

Interesting Letters

NRA Code Discriminatory

TO THE EDITOR: As a functioning legitimate distributor and jobber of rubber goods, this company finds that unquestionably the NRA Code for the Rubber Industry has been so formulated as to discriminate against enterprises such as ours.

As an example: we who purchase volume merchandise for general distribution to the dealer trade find that according to the terms of the Code, any dealer who cares to classify himself as a jobber or who may be handling hardware or other supplies can also qualify by placing a minimum stock order as a "jobber" in rubber goods, thereby taking away the business and the opportunity of the legitimate rubber distributor.

It is apparent and evident that the large manufacturers represented in the formulation of the Rubber Industry Code figured that in such a policy more

general distribution would be effected, resulting in better business for the manufacturers. This policy, while appearing to be logical, yet cannot work out, as it is bound to hurt the industry from a price angle as well as tend to lessen distribution by curtailing the interest of the distributors, thus minimizing their purchases and the transferring of their efforts in lines permitting them a better profit.

From a price angle, the theory is that when any article is selling through regular channels and these channels of trade are omitted and a more general distribution plan substituted such a plan becomes a sideline; so sales effort is eliminated, and production of rubber goods thereby affected.

RUBBER JOBBER.

New York, N. Y.
August 21, 1934.

New England

(Continued from page 54)

General Cable Corp., Pawtucket, R. I., held the annual outing of its employees at Crescent Park on Narragansett Bay, July 28. Among the guests were: Assistant General Works Superintendent Moss Kent, Assistant Manager of the Research Laboratory George Cassell, Robert Wright, of Somerville, N. J., and Plant Manager William Watson.

Davidson Rubber Co., Boston, Mass., manufacturer of druggists' sundries, reports that Thomas F. Maher, Chicago, Ill., branch manager, visited the Boston factory and other eastern points last month in the interest of his company.

Archer Rubber Co., Milford, Mass., announced that Oscar W. Westermann, formerly with the United States Rubber Co., now is its sales representative on clothing in the St. Louis, Mo., district, with offices at 1123 Washington Ave., St. Louis.

The National India Rubber Co. wire division, which occupies a large portion of the buildings formerly used by the company at Bristol and which manufactures insulated wires and cables, will not be closed this year for the usual summer vacation, but will be kept running with a sufficient number of operatives to take care of orders. Notice has been filed at the office of the secretary of state that the capital stock of National India Rubber has been reduced from \$3,000,000 to \$1,000,000.

British Malaya

An official cable from Singapore to the Malayan Information Agency, Malaya House, 57 Charing Cross, London, S.W.1, England, gives the following figures for July, 1934:

Rubber Exports: Ocean shipments from Singapore, Penang, Malacca, and Port Swettenham

To	July, 1934	
	Sheet and Crepe Rubber Tons	Latex, Concentrated Latex, Revertex, and Other Forms of Latex Tons
United Kingdom	10,817	281
United States	25,902	697
Continent of Europe ..	9,566	234
British possessions	2,582	44
Japan	4,174	5
Other countries	788	5
Totals	53,829	1,261

Rubber Imports: Actual by Land and Sea

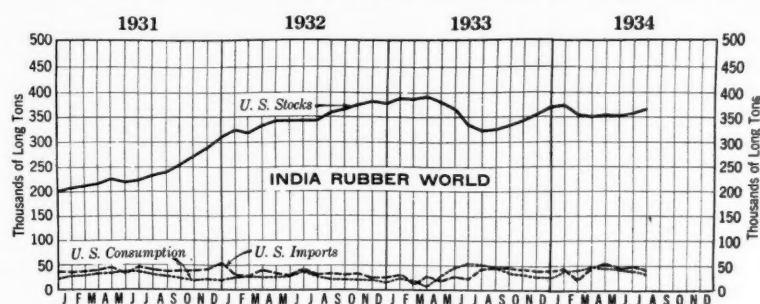
From	July, 1934	
	Dry Rubber Tons	Wet Rubber Tons
Sumatra	2,777	7,720
Dutch Borneo	2,659	3,320
Java and other Dutch Islands ..	839	29
Sarawak	1,609	53
British Borneo	533	64
Burma	334	36
Siam	1,465	934
French Indo-China	100	42
Other countries	101	14
Totals	10,417	12,412

IMPORTS, CONSUMPTION, AND STOCKS

United States and World Statistics of Rubber Imports, Exports, Consumption, and Stocks

Twelve Months	U. S. Net Imports* Tons	U. S. Consumption Tons	U. S. Stocks on Hand† Tons	U. S. Stocks Afloat† Tons	United Kingdom Stocks† Tons	Singapore and Penang, Etc., Stocks† Tons	World Production (Net Exports)† Tons	World Consumption Estimated Tons	World Stocks† Tons
1931	495,163	348,986	322,825	40,455	127,103	55,458	797,441	668,660	495,724
1932	400,787	332,000	379,000	38,360	92,567	36,802	709,840	670,250	518,187
1933	411,615	405,687	364,541	55,606	86,438	48,744	845,291	818,370	489,029
1934									
January ...	46,204	40,413	368,660	45,768	90,272	51,427	81,487	77,200	510,359
February ..	31,032	40,609	357,094	53,063	92,482	52,580	88,239	82,100	502,155
March	44,605	47,097	353,242	54,722	94,314	59,224	92,070	78,000	506,494
April	45,662	44,947	351,981	56,251	96,108	63,381	84,153	88,400	508,795
May	47,954	43,012	351,329	57,921	96,197	89,758	115,612	79,300	537,278
June	49,683	40,241	358,149	46,698	99,702	82,333	64,505	75,000	540,183
July	41,530	32,647	364,883	45,869	.....	.....	.....	.....	.....

*Including liquid latex, but not guayule. †Stocks on hand the last of the month or year. ‡W. H. Rickinson & Son's figures. §Stocks at the 3 main centers, U. S. A., U. K., Singapore and Penang.



United States Stocks, Imports and Consumption

CRUDE rubber consumption by United States manufacturers for July amounted to 32,647 long tons, against 40,241 long tons for June, a decrease of 18.9% under June and 34.2% below July, 1933, according to R.M.A. statistics. Consumption for July, 1933, was 49,614 (revised) long tons.

Crude rubber imports for July were 41,530 long tons, a decrease of 16.4% under June and 6.2% below July, 1933.

The estimated total domestic stocks of crude rubber July 31 were 364,883 long tons, compared with June 30 stocks of 358,149 long tons. July 31 stocks show an increase of 1.9% above June 30 stocks and 10.8% above stocks of July 31, 1933.

Crude rubber afloat for the United States ports on July 31 was 45,869 long tons against 46,698 long tons afloat on June 30 and 57,435 long tons afloat on July 31, 1933.

London and Liverpool Stocks

Week Ended	Tons	
	London	Liverpool
July 28.....	49,834	55,556
Aug. 4.....	50,860	55,467
Aug. 11.....	51,555	55,681
Aug. 18.....	51,640	55,757
Aug. 25.....	51,362	56,343

RECLAIMED RUBBER

THE slackness that featured July business in reclaim persisted in August. Notwithstanding favorable price quotations rubber manufacturers are

withholding commitments for the near future because they share the prevailing uncertainty due to the conflicts and confusions developed by the New

Deal policies on prices and labor conditions.

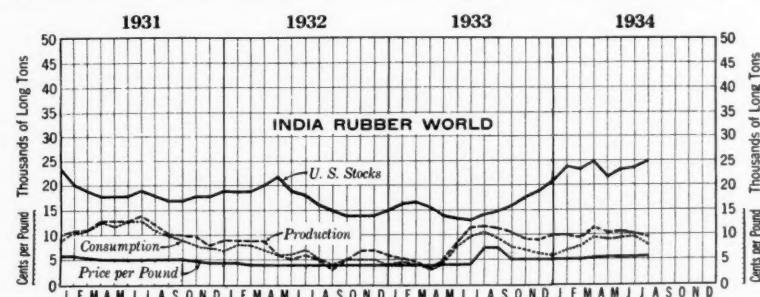
Reclaiming plants are operating on very moderate production. July output was 9,446 long tons, the lowest monthly record thus far this year, having fallen from 11,479 long tons since March. Monthly consumption tonnage has been very well maintained since March until the sudden drop in July to 8,175 long tons, or 1,332 long tons less than the average for the preceding 4 months.

Quotations are firm, steady, and unchanged from last month.

New York Quotations

August 27, 1934

	Spec. Grav.	Cents per Lb.
High Tensile		
Super-reclaim, black	1.20	8 3/4/9
red	1.20	7 /7 1/4
Auto Tire		
Black	1.21	5 /5 1/4
Black selected tires	1.18	5 1/4/5 1/2
Dark gray	1.35	6 1/4/6 1/2
White	1.40	9 1/4/9 1/2
Shoe		
Unwashed	1.60	6 1/4/6 3/4
Washed	1.50	8 /9
Tube		
No. 1	1.00	13 /
No. 2	1.10	7 1/2/7 3/4
Truck Tire		
Truck tire, heavy gravity..	1.55	5 1/2/6
Truck tire, light gravity..	1.40	6 /6 1/4
Miscellaneous		
Mechanical blends	1.60	4 3/4/4 1/2



Production, Consumption, Stocks, and Price of Tire Reclaim

United States Reclaimed Rubber Statistics—Long Tons

Year	Production	Consumption	Consumption Per Cent to Crude	United States Stocks*	Exports
1931	132,462	125,001	35.7	19,257	6,971
1932	75,656	77,500	23.3	21,714	3,536
1933	99,974	81,612	20.1	20,746	3,583
1934					
January	9,828	7,000	17.3	24,303	333
February	9,504	7,646	18.8	23,356	282
March	11,479	9,683	20.3	25,113	354
April	10,185	9,387	20.9	22,033	394
May	10,848	9,500	22.1	22,887	559
June	10,820	9,459	23.5	23,664	444
July	9,446	8,175	25.0	24,926	669

*Stocks on hand the last of the month or year.
Compiled by The Rubber Manufacturers Association, Inc.

MICRONEX

¶ In the vast changes which have come about in motor car design and construction, one fact is outstanding. By keeping pace with these changes Tire Engineers have produced tires of unprecedented sturdiness and wearing power . . . *tires which have won universal public confidence for safety and durability.* ¶ It is pleasing to the makers of Micronex that their carbon black has played an important part in solving many problems leading to this hard-won goal.

BINNEY & SMITH Co.

Specialists in CARBON BLACKS, STEARIC ACID, IRON OXIDES, MINERAL RUBBER and other products for the RUBBER INDUSTRY

41 EAST 42ND STREET, NEW YORK, N. Y.

200 TONS OF
SMOKE A DAY

MICRONEX MEANS



MORE MILEAGE

*The Magic Lamp
Your Protection for
Over 50 Years*

COMPOUNDING INGREDIENTS

PRODUCTION of tires and rubber goods generally was in sub-seasonal volume without evidences of pronounced fall revival. In consequence the demand for rubber chemicals and other high-grade compounding ingredients fell off in marked degree. The only ingredients that presented a semblance of activity were such materials as mineral rubber, clay, whiting, and similar inexpensive fillers.

ACE-RITE HP, the latest addition to a well-established line of rubber chemicals is an anti-flex cracker and high temperature resister combined. Also it is a real antioxidant as measured by the oxygen bomb, Geer oven, or air bomb.

CARBON BLACK. The moderate consumption in July by the rubber indus-

try continued through August, with indications of better business in September. Prices continue firm.

FACTICE. The demand holds normal with very little change in the market situation. Prices are strong owing to the steady advance of crude materials.

LITHARGE. Demand is seasonal and routine. The last week in July the price on 20-ton lots advanced to 5.30¢ per pound, followed a week later by a further rise to 5.35¢. These advances were of short duration, 5.25¢ being the figure reported on August 6 owing to a decline in pig lead. Since that date the price held steady.

MINERAL RUBBER. Sales of mineral rubber gain in volume as crude rubber strongly maintains its relatively high level. The use of mineral rubber is

vital in those lines where quality permits requisite price adjustment on a volume basis.

RUBBER SOLVENT. Reduction of tire schedules for August caused a drop in demand for solvent. Increased consumption is forecast for September. Prices hold steady and unchanged.

TITANOLITH is the trade name of the original titanium lithopone possessing great whitening power and tinting strength. In addition its easy mixing properties render it superior in compounding white rubber stocks.

ZINC OXIDE. This standard ingredient, being essential in practically all lines of rubber compounding, is in routine demand even when tire schedules are drastically reduced as at present. Prices are firm and unchanged.

New York Quotations

August 27, 1934

Prices Not Reported Will Be Supplied on Application

Abrasives		
Pumicestone, powdered.....lb.	\$0.0134	\$0.03 1/2
Rottenstone, domestic.....lb.	.02 1/2	.05
English.....ton		
Silica, 15.....ton	47.50	
Tripoli.....ton		
Accelerators, Inorganic		
Lead, white, dry (bbbs.).....lb.	.06 1/2	
Lime, hydrated.....ton	20.00	
Litharge (commercial).....lb.	.06 1/2	
Magnesia, calcined, heavy.....lb.	.04	
carbonate.....lb.	.06 1/2	
Accelerators, Organic		
A-1 (Thiocarbaniid).....lb.	.21	.25
A-5-10.....lb.	.33	.36
A-7.....lb.	.53	.65
A-11.....lb.	.60	.75
A-16.....lb.	.55	.65
A-19.....lb.	.56	.75
A-32.....lb.	.70	.80
Accelerator 49.....lb.	.40	.50
Aerin.....lb.		
Aldehyde ammonia.....lb.		
Altax.....lb.		
Anhydrotolaldehyde-para-toluidine.....lb.		
Barak.....lb.		
Beutene.....lb.		
C-P-B.....lb.		
Captax.....lb.		
Crylene.....lb.		
D-B-A.....lb.		
D-B-X.....lb.		
Di-Esterex.....lb.		
Di-Esterex-N.....lb.		
DOTG.....lb.	.46	.56
DPG.....lb.	.36	.46
du Pont 808.....lb.		
833.....lb.		
Esterex.....lb.		
Ethylidene aniline.....lb.		
Formaldehyde P.A.C.....lb.		
Guantal.....lb.	.42	.51
Hepteen Base.....lb.		
Hexamethylenetetramine.....lb.		
Lead oleate, No. 999.....lb.	.09 1/2	
Witco.....lb.	.10	
Lithex.....lb.		
Monex.....lb.		
Novex.....lb.		
Pipsol X.....lb.	3.55	4.00
Plastone.....lb.		
R-2.....lb.	1.55	1.90
base.....lb.	4.55	5.00
R & H 40.....lb.		
50-D.....lb.		
Safex.....lb.		
Super-sulphur No. 1.....lb.		
No. 2.....lb.		
Tetrone A.....lb.		
Thio.....lb.		
Thionex.....lb.		
Trimene Base.....lb.		
Triphenyl guanidine (TPG).....lb.		
Tuads.....lb.		

Ureka.....lb.	\$0.62	/\$1.00
B.....lb.		
C.....lb.	.58	.69
Vulcanex.....lb.		
Vulcanol.....lb.		
Vulcone.....lb.		
Z-B-X.....lb.		
Z-88-P.....lb.	.48	.60
Zimate.....lb.		
Acids		
Acetic 28% (bbbs.).....100 lbs.	2.66	2.91
glacial (carbonyl).....100 lbs.	14.00	
Sulphuric, 66%.....ton	15.50	
Age Resisters		
Age-Rite Gel.....lb.		
HP.....lb.		
powder.....lb.		
resin.....lb.		
white.....lb.		
Albasan.....lb.		
Antox.....lb.		
B-L-E.....lb.		
Flectol A.....lb.		
B.....lb.		
H.....lb.		
White.....lb.		
Hiflex B.....lb.		
M-U-F.....lb.		
Neozone.....lb.		
Oxynone.....lb.		
Parazone.....lb.		
Permalux.....lb.		
Solux.....lb.		
V-G-B.....lb.		
Zalba.....lb.		
Alkalies		
Caustic soda, 50% liquid.....lb.		
Columbia.....100 lbs.	2.25	
70%.....100 lbs.	2.30	
solid.....100 lbs.	2.60	3.50
Antiscorch Materials		
Retarder-W.....lb.		
R. H. Cumar.....lb.	.075	.085
U-T-B.....lb.		
Antisun Materials		
Heliozone.....lb.		
Sunproof.....lb.		
Binders, Fibrous		
Asbestos.....ton		
Brake Lining Saturants		
B. R. C. No. 553.....lb.	.015	.017
B. R. T. No. 3.....lb.	.015	.017
Colors		
BLACK		
Bone.....lb.	.05 1/2	.15 1/2
Lampblack (commercial).....lb.	.07	.12
BLUE		
Brilliant.....lb.		
Prussian.....lb.	.35 1/2	
Toners.....lb.	.80	3.50
Ultramarine, dry.....lb.	.10	

BROWN		
Mapico.....lb.	\$0.13	
Sienna, Italian, raw.....lb.	.04 1/2	.12 1/2
GREEN		
Brilliant.....lb.		
Chrome, light.....lb.	.20	
medium.....lb.	.20	
oxide.....lb.	.21 1/2	
Dark.....lb.		
Guignet's.....lb.	.70	
Light.....lb.		
Toners.....lb.	.85	/\$3.50
ORANGE		
Lake.....lb.		
Toners.....lb.	.40	1.60
ORCHID		
Toners.....lb.	1.50	2.00
PINK		
Toners.....lb.	1.50	4.00
PURPLE		
Permanent.....lb.		
Toners.....lb.	.60	2.00
RED		
Antimony		
Crimson, R. M. P. No. 3.....lb.	.46	
Sulphur free.....lb.	.48	
7-A.....lb.	.33	
Sulphuret.....lb.		
Z-2.....lb.	.20	
Cadmium.....lb.		
Chinese.....lb.		
Crimson.....lb.		
Iron Oxides		
Rub-Er-Red.....lb.	.09 1/2	
Mapico.....lb.	.09 1/2	
Medium.....lb.		
Scarlet.....lb.		
Toners.....lb.	.80	2.00
WHITE		
Lithopone (bags).....lb.	.04 1/2	.04 3/4
Albalith Black Label-11.....lb.	.04 1/2	.04 3/4
Astrolith.....lb.		
Azolith.....lb.	.04 1/2	.04 3/4
Cryptone-19.....lb.	.06	.06 1/2
CB-21.....lb.	.06	.06 1/2
Sunolith.....lb.		
XX-20 Zinc Sulphide.....lb.	.10 1/2	.10 3/4
86.....lb.	.10 1/2	.10 3/4
Rayox.....lb.		
Titanolith.....lb.		
Titanox-A.....lb.	.17	.18 1/2
B.....lb.	.06	.06 1/2
C.....lb.	.06	.06 1/2
Zinc Oxide		
Azo 35 (35% leaded).....lb.	.06	.06 1/2
Z (10% leaded).....lb.	.06 1/2	.06 3/4
ZZ (3-5% leaded).....lb.	.06 1/2	.06 3/4
ZZZ (lead free).....lb.	.06 1/2	.06 3/4
Black label (lead free).....lb.	.06 1/2	
Ceramatone.....lb.	.06 1/2	.06 3/4
F. P. Florence, Green.....lb.		
Seal-8.....lb.	.09 1/2	
Red Seal-9.....lb.	.08 1/2	
White Seal-7 (bbbs.).....lb.	10 1/2	

Green label (lead free).....lb.	\$0.06½	
seal, Anaconda.....lb.	.09½/\$0.09½	
Horsehead (lead free) brand		
Special-3.....lb.	.06½/.06½	
XX Red-4.....lb.	.06½/.06½	
72.....lb.	.06½/.06½	
78.....lb.	.06½/.06½	
103.....lb.	.06½/.06½	
Kadox Black Label-15.....lb.	.09½/.09½	
Blue Label-16.....lb.	.08½/.08½	
Red Label-17.....lb.	.07/.07½	
Lead free, all grades		
Anaconda.....lb.	.06½/.06½	
Leaded, 5%, Anaconda.....lb.	.06½/.06½	
35%, Anaconda.....lb.	.05½/.06	
Red label (lead free).....lb.	.06½	
seal, Anaconda.....lb.	.08½/.08½	
U.S.P. (bbils.).....lb.	.12½	
U.S.P. X (bbils.).....lb.	.12½	
White seal, Anaconda.....lb.	.10½	

YELLOW

Cadmium.....lb.		
Lemon.....lb.		
Mapico.....lb.	.09½	
Ocher, domestic.....lb.	.0195/.02½	
Toners.....lb.	2.50	

Dispersing Agents

Bardez.....lb.	.023/.025	
Bardol.....lb.	.021/.023	
Darvan.....lb.		

Factice—See Rubber Substitutes**Fillers, Inert**

Asbestine.....ton	15.00	
Barytes (f.o.b. St. Louis), (bbils.).....ton	23.00	
off color, domestic.....ton	22.50	/25.00
white, imported.....ton	32.50	/35.00
Blanc fixe, dry precip.....ton	70.00	/75.00
pulp.....ton	42.50	
Calcene.....100 lbs.	1.75	/2.15
Infusorial earth.....lb.	.03	
Kalite No. 1.....ton		
No. 3.....ton		
Suprex, white, extra light.....ton	60.00	/75.00
heavy.....ton	45.00	/60.00
Whiting		
Chalk precipitated.....lb.	.04½/.04½	
Columbia brand.....ton	8.00	/13.00
Domestic.....ton		
Hakunika.....lb.		
Paris white, English cliff-stone.....100 lbs.		
Sussex.....ton		
Witco.....ton	15.00	
Wood flock (f.o.b. New Hampshire).....ton	21.00	/55.00

Fillers for Pliability

Flex.....lb.		
Fumonex, c.l., f.o.b. works, bags.....lb.	.03	
I.c.l., f.o.b. warehouse.....lb.	.05½/.07	
P-33.....lb.		
Thermax.....lb.		
Velvetex.....lb.		

Finishes

IVCO lacquer, clear.....gal.	2.60	/2.90
colors.....gal.	2.70	/3.35
Rubber lacquer, clear.....gal.		
Colored.....gal.		
No. 106.....gal.	3.00	
Starch, corn, p.w.d.....100 lbs.	3.56	/3.76
potato.....lb.	.05½/.06	
Talc, dusting.....ton	20.00	
Pyrex.....ton		

Flocks

Cotton flock, dark.....lb.	.10½/.13	
died.....lb.	.50/.85	
white.....lb.	.14/.20	
Rayon flock, colored.....lb.	1.60	/1.75
white.....lb.	1.40	

Latex Compounding Ingredients

Accelerator 552.....lb.		
Aquarex.....lb.		
Areco.....lb.	.28	/ .40
Casein, domestic.....lb.	.12	/ .12½
Catalpo.....ton		
Colloidal color pastes.....lb.		
sulphur.....lb.		
zinc oxide.....lb.		
Disinfectants.....lb.		
Dispersaid.....lb.	1.50	
Dispersed Antox.....lb.		
factice compound.....lb.		
Emo, brown.....lb.	.12	
white.....lb.	.12	
Emulsified Heliozone.....lb.		
Fac-cel B.....lb.	.129	
C.....lb.	.129	
Igepon A.....lb.		
Nekal BX (dry).....lb.		
Neozone L.....lb.		
Palmol.....lb.		
Tepidone.....lb.		
Vulcan colors.....lb.		

Mineral Rubber

B. R. C. No. 20.....lb.	.014	/ .016
Black Diamond.....ton		
Genasco Hydrocarbon, granulated, (fact'y).....ton	35.00	/37.00
solid.....ton	25.00	/27.00

Genisonite Hydrocarbon (factory).....ton		
Hydrocarbon hard.....ton		
soft.....ton		
Param Grade 1.....ton	\$23.00	
Grade 2.....ton	23.00	
265°.....ton		

Mold Lubricants

Aquarex D.....lb.		
Rusco mold paste.....lb.	.12	/ \$0.30
Sericite.....ton	65.00	
Soapbaric (cut).....lb.	.11	/ .12
Soapstone.....ton	15.00	/25.00

Oils

Castor, blown.....lb.	.11½/.11½	
Poppysced (bbils.).....gal.		
Rapeseed, refined (bbils.).....gal.	.39½/.40½	

Reclaiming Oils

B. R. V.....lb.	.039	/ .041
S. R. O.....lb.	.012	/ .014

Reinforcers

Carbon Black		
Aeriflot Arrow Specification Black.....lb.	.0535/	.0825
Arrow Compact Black.....lb.		
Century (delivered).....lb.	.0445/	.0535
"Certified" Cabot.....lb.		
Spheron.....lb.		
Disperso (delivered).....lb.	.0445/	.0535
Dixie, c.l., f.o.b. New Orleans, La.; Galveston or Houston, Tex.....lb.	.0445	
local stock, delivered.....lb.	.0535/	.0825
Gastex.....lb.	.03	/ .07
Kosmos, c.l., f.o.b. New Orleans, La.; Galveston or Houston, Tex.....lb.	.0445	
local stock, delivered.....lb.	.0535/	.0825
Micronex.....lb.	.0535	
Beads.....lb.		
Ordinary (compressed or uncompressed).....lb.	.0535	
Carbonex.....lb.	.030	/ .0375
S.....lb.	.0315/	.040
Clays		
Aeriflot Paragon.....ton	7.50	/10.00
Suprex, No. 1, selected.....ton	10.00	
No. 2, standard.....ton	7.50	
Blue Ridge, dark.....ton		
China.....ton		
Dixie.....ton		
McNamee.....ton		
Par.....ton		
Perfection.....ton	7.50	/ 9.00
Standard.....ton		
Cumar EX.....ton	.0275/	.0375

Reodorants

Amora A.....lb.		
B.....lb.		
C.....lb.		
D.....lb.		
Para-Dors.....lb.		
Rodo No. 0.....lb.		
No. 10.....lb.		

Rubber Substitutes or Factice

Amberex.....lb.	.13½	
Black.....lb.	.06	/ .08½
Brown.....lb.	.07½/	.11
White.....lb.	.07½/	.12

Softeners

B. R. C. No. 555.....lb.	.012	/ .014
B. R. T. No. 7.....lb.	.015	/ .017
Burgundy pitch.....lb.	.05	/ .06
(net weight).....lb.	.06	/ .08
Corn oil, crude (bbils.).....lb.	.07	
Cyclone oil.....gal.	.15	/ .28
Fluxol.....ton		
Genasco liquid asphalt.....gal.		
Hardwood pitch, c.l.....ton	23.50	/25.00
Palm oil (Witco).....lb.	.05	
Petrolatum, light amber.....lb.	.04	
Pigmentar (drums).....gal.	.23	/ .25
Pigmentar oil (drums).....gal.	.23	/ .25
Pine oil, dest. distilled (drums).....gal.	.47	/ .49

pitch.....bbl.	\$5.75	
tar, specification retort (drums).....gal.	.23	/ \$0.26
Plastogen.....lb.		
Rosin oil, compounded.....gal.	.33	/ .38
Rubtack.....lb.	.10	
Sperso.....lb.	.085	/ .18
Tackol.....lb.		
Tonox.....lb.		
Witco, No. 20.....gal.	.15	

Softeners for Hard Rubber Compounding

Resin C-55°.....lb.	.0125/	.0145
70°.....lb.	.0125/	.0145
85°.....lb.	.0125/	.0145

Solvents

Benzol 90% (drums).....gal.	.28	
Bondogen.....gal.		
Carbon bisulphide (drums).....lb.	.05½/	.07½
tetrachloride.....lb.	.05½/	.07½
Dipentene, commercial.....gal.	.34	/ .44
Rubber (f.o.b. Group 3 refiners).....gal.	.06½	
Toluol.....gal.	.39	
Turpentine, steam distilled.....gal.	.44	
wood, dest. distilled (drums).....gal.	.40	

Stabilizers for Cure

Laurex, ton lots.....lb.		
Stearax B.....lb.	.08	/ .09½
Beads.....lb.	.07½/	.09
Stearic acid, dbl. pres'd.....lb.	.09	/ .10½
Zinc stearate.....lb.	.20	/ .25

Synthetic Rubber

DuPrene.....lb.	1.00	
-----------------	------	--

Tackifier

B. R. H. No. 2.....lb.	.015	/ .017
------------------------	------	--------

Varnish

Shoe.....gal.	1.60	
---------------	------	--

Vulcanizing Ingredients

Sulphur		
Chloride, drums.....lb.	.03½/	.04
Flowers, extrafine refined, U.S.P. ....100 lbs.		
Rubber.....100 lbs.	1.95	/ 2.80
Telloy.....lb.		
Vandex.....lb.		

(See also Colors—Antimony)

Waxes

Carnauba.....lb.	.33½/	.35
Montan.....lb.	.10½/	.11
Paraffine (128/130) refined.....lb.	.06½	

World Rubber Shipments—Net Exports

	Long Tons—1934			
	Apr.	May	June	
British Malaya	56,748	69,403	53,282	
Gross exports.....	27,963	34,093	20,981	
Imports.....				
Net.....	28,785	35,310	32,301	
Ceylon.....	5,157	8,870	4,895	
India and Burma.....	762	1,106	1,425	
Sarawak.....	1,447	1,892	1,886	
British N. Borneo.....	894	1,397	644	
Siam.....	1,311	997	1,497	
Java and Madura.....	7,282	12,104	4,860	
Sumatra E. Coast.....	11,324	16,720	6,078	
Other N. E. Indies.....	24,054	34,710	15,216	
French Indo-China.....	1,519	1,408	1,504	
Amazon Valley.....	440	726	765	
Other America.....	5	7	10	
Africa.....	131	221	2	
Guayule.....	100	100	50	
Totals.....	83,211	115,568	71,133	

Compiled by Leather-Rubber-Shoe Division, Department of Commerce, Washington, D. C.

U. S. Crude and Waste Rubber Imports for 1934

		Plantations	Latex	Paras	African	Centrals	Guayule	Matto Grosso	Manicoba and Totals	Ba-lata	Miscellaneous	Waste
Jan.....tons	44,988	973	182	61	..	..	..	46,204	31,110	73	693	32
Feb.....	30,164	750	118	..	..	..	..	31,032	18,875	70	607	..
Mar.....	43,204	901	450	..	..	50	..	44,605	27,879	169	415	157
Apr.....	44,394	827	324	..	17	100	..	45,662	19,459	165	633	99
May.....	46,440	1,230	181	..	3	100	..	47,954	27,556	143	616	117
June.....	48,275	1,235	115	..	8	50	..	49,683	22,729	128	553	27
July.....	40,217	1,064	210	35	4	..	..	41,530	44,290	107	561	55
Total, 7 mos., 1934.....tons	297,682	6,980	1,580	96	32	300	..	306,670	..	855	4,078	487
Total, 7 mos., 1933.....tons	186,051	3,690	2,122	35	..	..	..	191,898	953	4,146	11	..

Compiled from the Rubber Manufacturers Association, Inc., statistics.

Disperso CARBON BLACK

● This is the specially-produced Carbon Black which gives better dispersion. It is double-checked daily, with two independent tensile tests; one at the plant where Disperso is made, another at our general research laboratories. . . . Then remember this: We will meet (or better!) the most exacting specifications of the Rubber Industry for Carbon Black!

HYDROCARBONS (M. R.)

The famous Pioneer Brand! . . . We offer you in these Hydrocarbons the highest quality in both Solid and Granular grades . . . with melting points ranging from 200°C to 320°C to meet your most rigid requirements.

WITCO

BUY DIRECT AND PROFIT DIRECTLY

WISHNICK-TUMPEER, INC.



MANUFACTURERS AND IMPORTERS

CHICAGO, 365 E. ILLINOIS ST. • NEW YORK, 251 FRONT ST. • BOSTON, 141 MILK ST.

CLEVELAND, 616 ST. CLAIR AVE., N. E.

WITCO OWNED AND OPERATED: CENTURY CARBON CO., THE PIONEER ASPHALT CO.
and the PANHANDLE CARBON CO.

RMP ANTIMONY FOR RED RUBBER

.....The utmost in
pleasing appearance
with no deteriorating
effect whatever.

RARE METAL PRODUCTS CO.
BELLEVILLE, N. J.

WESTERN RUBBER CO.

**Manufacturers of Rubber for the
Industries**

We Supply

Plumbers' Brass Goods Manufacturers
Electrical Goods Manufacturers
Automotive Manufacturers
Furniture Manufacturers
Radio Manufacturers
Railroads

Let us figure on your specifications

PUMP VALVES PACKINGS INSULATORS
BUMPERS SPECIAL MOULDED GOODS GASKETS

Factory at Goshen, Indiana

SALES OFFICES

Goshen, Ind.	Milwaukee	Chicago	Cleveland
Philadelphia	New York	Detroit	St. Louis

La GOMA

Organ for the rubber and allied trades including Gutta Percha, Asbestos, Ebonite, Celluloid and other plastic materials, their derivatives and applications.

Founded in 1929 and published monthly La GOMA is the first and only periodical of the rubber industry in Spain.

Subscription Rates

Spain 10 pesetas per annum - 5 pesetas for six months
Abroad 15 pesetas per annum - 8 pesetas for six months

Founder, Proprietor, Director and Manager

Juan Blanch Guerrero

Calle de Moncada 4

BARCELONA, SPAIN

MT. VERNON WOODBERRY MILLS, INC.



*Fabrics
for the
Rubber
Trade*



TURNER, HALSEY CO.

SALES AGENT

40 WORTH ST., NEW YORK

BALTIMORE
BOSTON

BRANCHES
CHICAGO
NEW ORLEANS

SAN FRANCISCO
ST. LOUIS

COTTON AND FABRICS

DEVELOPMENTS in cotton moved rapidly in the latter part of August, and the outlook at present is far from clear. The government prediction of a crop of 9,195,000 bales, the smallest since 1896 except for 1921, was less than expectations and resulted in a good rise. The drought in Texas and Oklahoma was unrelieved until August 25, but it was then considered too late for relief, and private estimates probably will show smaller figures than the government's.

Next in importance was the general strike called by the United Textile Workers and concurred in by the American Federation of Labor. Approximately 500,000 workers in the textile industry will be affected if the strike call is issued on September 1 as planned.

President Roosevelt made 2 announcements which observers thought were designed to avert the strike. First, he called for a 10% increase in wage rates and a 10% decrease in hours; then he announced that loans of 12¢ a pound would be extended on all cotton held by farmers, including that which farmers held by option in the government pool formed last year. The 12¢ price was disappointing to traders, who expected a higher level, and the refusal of the Textile Union to arbitrate with the National Labor Board held out little hope for settlement.

Manufacturers were disappointed too. Because of the small crop and the increase in the price of raw cotton they felt that the processing tax of 4.2¢ per pound was imposing too great a burden on them and raising costs so high as to make retail prices out of line. But Secretary Wallace stated that the processing tax would not be withdrawn, and plans are being formulated to continue the crop control plans next year. Because of the red tape necessary under the Bankhead Act, ginnings have been held up and are almost 100,000 bales behind those of last year.

The nationalization of silver had its effect on cotton, as did the shortage in grains and wheat crops. Foreign developments such as the trouble in Austria, the trade agreement with Cuba, Germany's refusal to service the Dawes and Young loans, the drop in the pound, our heavy gold exports, and numerous other factors all reflect on the commodity markets.

Considering the numerous influences under which all markets are operating, and especially the complications which will ensue if the textile strike goes through, all that one can do is cross his fingers and hope for the best.

Week ended July 28. Rains in the drought area, weakness in stocks due to the uprisings in Austria, and agitation for suspension of the Bankhead Act all influenced cotton during the

week. The course of prices was uneven, with a steady tone at the close, making for net losses of from 9 to 13 points from the close on July 21.

October closed at 12.93¢ against 13.04¢; December 13.04 against 13.17; January 13.08 against 13.21; March 13.22 against 13.31; and May 13.29 against 13.39. The July position was last traded at 13.17¢, compared with 11.65¢ a year ago, and 9.25¢ at its lowest point last August.

Prediction of a tropical storm in the Gulf of Mexico heading for Texas made for nervous trading. Rain reports were received almost daily, but at the end of the week it was found that the benefit derived was small, with the heaviest precipitation on full grown crops which did more damage than good. Because so much of the crop in Texas has been destroyed, farmers are moving for the repeal of the Bankhead Act, in the belief that the crop to be realized will be under the limits imposed by the legislation and will therefore be unnecessary.

Forwardings were 180,000 bales, compared with 184,000 bales in the preceding week and 257,000 in the same week a year ago. Trading in the goods markets was quiet, with manufacturers hesitating about making commitments until the trend of raw material prices was more steady. Prices were unchanged.

At a meeting of the United Textile Workers of America, Thomas F. McMahon, president, announced a demand would be made for a 30-hour week. The question of wages, hours, and machine load, which almost threatened a strike a few months ago, is still under consideration.

Week ended August 4. Despite continued drought and private estimates of a crop around 9,000,000 bales, the market sold off during most of the week, probably because of hedges against the new crop. Rain fell in the south of Texas, but picking is under way, and rain is not needed. In Oklahoma temperatures were between 105° and 110°, and it is estimated that the crop of both Texas and Oklahoma will not equal the allotment for Texas alone. A rally on Monday and Saturday saved the average, with prices from 8 to 13 points above last week's.

October closed at 13.05¢ against 12.93¢; December 13.17 against 13.04; January 13.21 against 13.08; March 13.35 against 13.22; and May 13.37 against 13.29.

The new crop is being harvested slowly, owing to the necessity of tagging bales under the Bankhead Act. In the Mississippi Valley the crop has had good weather, and in many places production is in excess of allotments.

With the cotton year at an end, the Exchange Service put consumption at 13,547,000 bales, compared with 14,405,-

000 in 1932-33, and 12,506,000, 2 years ago. Carryover was put at 10,836,000 bales, against 11,754,000 last year, and 13,228,000 in 1932. Holdings here were estimated at 7,662,000 bales, against 8,081,000 last year; the amount held abroad was put at 3,174,000 bales, against 3,673,000 last year. The Cotton Producers' Pool announced that with the year-end 1,950,000 bales of cotton held by it could be sold at the discretion of the Secretary of Agriculture, although assurances were given that the sales would not disturb the market.

Dashing any hopes to the contrary, the Farm Administration declared that the 4.2¢ processing tax would be continued into next year to carry on the program of rental and benefit payments to farmers.

Coming as a surprise, George A. Sloan resigned from the Cotton Textile Institute and the cotton code authority. No reason was given.

Week ended August 11. With the exception of 1921, the present crop will be the smallest since 1896, according to the August 1 government report. This forecast, together with the move for nationalization of silver, raised cotton prices sharply in the middle of the week, but a break in grains and sales by traders who had bought cotton in the hope of selling it to the Federal Government for relief purposes resulted in a decline at the week-end. Prices for the session, however, were 38 to 44 points above last week's.

October closed at 13.43¢, compared with 13.05¢; December 13.58 against 13.17; January 13.63 against 13.21; March 13.74 against 13.35; May 13.79 against 13.37; and July 13.86 against 13.42.

The government forecast was for 9,195,000 bales, compared with 13,047,000 last year and an average of over 9,400,000 predicted by private sources. Average production in the last 5 years was 5,480,000 bales more than the present estimate. The drought in the hardest hit areas in Texas, Oklahoma, and Arkansas was not relieved, although rain fell in the Southwestern Plain States. A yield of 2,531,000 bales is expected in Texas, compared with its quota of 3,237,000; Oklahoma expects a crop of 674,000 against 783,000; and Arkansas 849,000 against 953,000. Grains, corn, barley, and rye are also hard hit.

The *New York Times* commented editorially about the crop shortages as follows: "A month ago the Government estimated that our wheat crop would be the smallest since 1893; our corn crop, with 2 exceptions, the smallest in 40 years; our barley crop the smallest, with one exception, since 1901; and our rye crop the smallest since 1874. It now forecasts the smallest cotton crop, with one exception, since 1896."

"... The question remains of the larger economic effects of our present

crop shortages. What matters so far as the farmer's income is concerned is not merely the prices at which he sells his crops, but how much he has to sell. Thus a 15,000,000-bale cotton crop at 10¢ a pound brings a larger money income to the farmer than a 9,000,000-bale crop at 14¢ a pound. Such computations are dangerous because of the still abnormal carry-over. But calculations regarding 'purchasing power' should not consider the farmer alone. When the consumer has to pay higher prices for farm products, he has less purchasing power left to buy other things."

The carry-over is put at 10,836,000 bales, making a total of about 20,000,000 bales, against which can be compared the consumption this year of 13,564,000 bales, against 14,405,000 in 1933.

Week ended August 18. For the first half of the week prices were on the upgrade, owing to rumors that cotton would be pegged at 13¢ and that the processing tax would be removed, and continued poor weather reports from the drought areas. A denial by Secretary Wallace that the tax would be suspended, rain in some sections of Oklahoma, and strike fears turned the market downward the second half of the session, with prices closing from 33 to 39 points below those of last Saturday.

October closed at 13.06¢, compared with 13.43¢; December 13.21 against 13.58; January 13.26 against 13.63; March 13.40 against 13.74; May 13.47 against 13.79; and July was 13.50 against 13.86.

At a convention of the United Textile Workers of America in Town Hall, New York, N. Y., a general strike was voted for workers in the cotton industry, effective September 1. Their aims are to secure the advantages of collective bargaining as provided under the NRA, and their slogan would be "The company union must go." A revision of the present Textile Code will be the goal of the strike to secure a 30-hour week with 40-hour pay. The present minimum scale of wages is also under fire, as well as the stretch-out system, and workers want the right to select their own representatives. This move is an outgrowth of the arbitrated strike called last spring, after a 25% cut in production had been ordered by General Johnson, although the actual reason was an effort to secure an increase of 33½% in wage rates.

The American Federation of Labor promised its support for the strike, and at a later session all allied groups such as silk and rayon voted to strike in sympathy with the cotton workers. If the plan is carried out, it is conservatively estimated that upwards of 625,000 workers will be affected.

The Census Bureau estimated July consumption at 359,372 bales of lint, compared with 363,414 in June and 600,641 in July, 1933. July exports were 305,820 bales of lint, against 459,226 in June, and 692,007 in July, 1933. Twelve months' consumption was 5,700,558 bales, compared with 6,135,-

525 last year. Exports were 7,534,415 bales, against 8,419,399.

The July 31 supply of cotton was put at 20,904,301 bales of lint, and 1,244,389 bales of linters, compared with 22,612,650 and 1,366,727 in 1932-33.

Week ended August 25. Expectations that private reports would show a smaller crop than that predicted by government agencies, strong trade buying, and notice of an important announcement from Washington sent prices up from 30 to 40 points the first 2 days of the week. But when the President revealed that loans of 12¢ a pound would be given to farmers with cotton on farms, traders were disappointed, and the market lost about 25 points. Again occurred a small recovery, but the market struck hedge selling on Saturday so that changes for

the week amounted to 7 to 15 points on the up side.

October closed at 13.21¢, compared with 13.06¢ last Saturday; December 13.36 against 13.21; January 13.40 against 13.26; March 13.48 against 13.40; May 13.57 against 13.47; and July 13.65 against 13.50.

In announcing the 12¢ loan plan the President said: "To enable cotton farmers to market their cotton more nearly as it is required for consumption, rather than necessarily at picking time, I have requested the Reconstruction Finance Corp. to make funds available to the Commodity Credit Corp. that will enable it to increase its lending from 10 to 12¢ a pound on cotton classing low middling or better, which is and has been continuously in the possession of the producer."

From indications at the week-end the textile strike is further away from settlement than it has been since the movement started. In a sharp letter to Robert Bruere, head of the Cotton Textile National Industrial Relations Board, Francis J. Gorman, chairman of the United Textile Workers, said: "This is not the occasion to detail our disappointment with the operation of the system of industrial relations boards originally set up under the Cotton Textile Code. Suffice it to say that though the national board was set up particularly 'to make proper provision with regard to the stretch-out,' in an entire year it has not begun to control this greatest of our problems."

The agreement for a 25% curtailment of working hours expires this week, and unless it is renewed, mills will go back on a 40-hour week instead of 30 hours, if they care to.

Before Mr. Gorman's action, the President had ordered a 10% cut in hours and a 10% rise in pay. At the time labor leaders hailed the action of the President as an effort to mediate the strike.

It was also reported that after "urgent representations" of the cotton industry, George A. Sloan had withdrawn his resignation as president of the Cotton Textile Institute and as chairman of the Code Authority of the Cotton Textile Industry.

Cotton Fabrics

DUCKS, DRILLS, AND OSNABURGS. Uncertainty of market conditions and softer prices have prevailed since early August owing to short cotton crop, higher prices for both raw material and mill products causing lessened demand on the part of jobbers and small manufacturing consumers. The larger factors have maintained their interest in the fabric market with bulk orders for forward delivery.

Curtailment of textile production by agreement continues for the third calendar month. It is questionable if sufficient new business can be secured to warrant full mill production at the end of the current 90-day curtailment. It is likely that substantial production cuts will continue among many mills outside of formal agreement. It seems

(Continued on page 78)

WEEKLY AVERAGE PRICES OF MIDDLING COTTON

Week Ended	Cents per Pound
July 28.....	12.93
Aug. 4.....	13.17
Aug. 11.....	13.58
Aug. 18.....	13.43
Aug. 25.....	13.42

New York Quotations

August 27, 1934

Drills		
38-inch 2.00-yard.....	yd.	\$0.16½
40-inch 3.47-yard.....		.09½
50-inch 1.52-yard.....		.21¾
52-inch 1.85-yard.....		.17½
Ducks		
38-inch 2.00-yard D. F.....	yd.	.16¼
40-inch 1.45-yard S. F.....		.22½
72-inch 1.05-yard D. F.....		.32
72-inch 17.21-ounce.....		.36½
MECHANICALS		
Hose and belting.....	lb.	.35
TENNIS		
52-inch 1.35-yard.....	yd.	.24¾
*Hollands		
GOLD SEAL		
30-inch No. 72.....	yd.	.19½
40-inch No. 72.....		.21½
RED SEAL		
30-inch.....	yd.	.17
40-inch.....		.18½
50-inch.....		.24½
Osnaburgs		
40-inch 2.34-yard.....	yd.	.13¾
40-inch 3.00-yard.....		.10½
40-inch 10-ounce part waste.....		.15¾
37-inch 2.42-yard.....		.13½
Raincoat Fabrics		
COTTON		
Bombazine 60 x 64.....	yd.	.10¾
Plaids 60 x 48.....		.11½
Surface prints 60 x 64.....		.12
Print cloth, 38½-inch, 60 x 64.....		.07½
SHEETINGS, 40-INCH		
48 x 48, 2.50-yard.....	yd.	.11½
64 x 68, 3.15-yard.....		.10½
56 x 60, 3.60-yard.....		.09½
44 x 48, 3.75-yard.....		.07½
SHEETINGS, 36-INCH		
48 x 48, 5.00-yard.....	yd.	.06½
44 x 40, 6.15-yard.....		.05½
Tire Fabrics		
BUILDER		
17¼ ounce 60" 23/11 ply Karded peeler.....	lb.	.44
CHAFER		
14 ounce 60" 20/8 ply Karded peeler.....	lb.	.44
9¼ ounce 60" 10/2 ply Karded peeler.....	lb.	.44
CORD FABRICS		
23/5/3 Karded peeler, 1½" cotton.....	lb.	.44
15/3/3 Karded peeler, 1½" cotton.....	lb.	.42
23/5/3 Karded peeler, 1¼" cotton.....	lb.	.53
23/5/3 Combed Egyptian.....	lb.	.60
LENO BREAKER		
8¾ ounce and 10¼ ounce 60" Karded peeler.....	lb.	.37

*Prices for 1,200 yards of a width or over.



THIS
MANUFACTURER
OF HOT WATER
BOTTLES

wanted to give one of his brands a definite, characteristic scent. He came to us. We suggested a

PARA-DOR

He has been using it for some time in his rubber, much to the satisfaction of the trade.

The sale of **your** product can be increased with Para-Dors. They are aromatic chemicals for counteracting odor in rubber compounds. There are 15 Para-Dors—neutral or scented—for different types of rubber.

GIVAUDAN
DELAWANNA INC.

Industrial Aromatics Division

80 FIFTH AVENUE : : : NEW YORK, N. Y.

**Regular and Special
Constructions
of
COTTON FABRICS**

**Single Filling Double Filling
and**

**ARMY
Ducks**

HOSE and BELTING

Ducks

Drills

Selected

Osnaburgs

Curran & Barry
320 BROADWAY
NEW YORK

RUBBER SCRAP

THE demand in August for rubber scrap held up well with that of July, and commitments continued good. Export call for inner tubes and solid tires was active.

BOOTS AND SHOES. Although trade is dull in footwear scrap, the general tone of the market is better.

INNER TUBES. A very good and steady trade prevails in inner tube grades both for domestic use and export.

TIRES. The demand for tires has lessened notably, and prices are somewhat easier. Stocks are not readily obtainable at the lower price levels owing to the freight charges.

SOLID TIRES. Domestic purchases of solid tire grades are only fair. The export demand continues good.

MECHANICALS. All grades of mechanical goods scrap are in fairly good demand and are being utilized to some extent in admixture to lessen the expense of higher grades of scrap.

Prices are steady and mostly unchanged. The only changes noted are a 1/8¢ cut on each of the 3 grades of boot and shoe scrap and a drop of \$2 a ton on clean mixed solid tires.

CONSUMERS' BUYING PRICES

(Carload Lots Delivered Eastern Mills)

August 27, 1934

Boots and Shoes		Prices	
Boots and shoes, black.....lb.	\$0.01 1/2	\$0.01 1/4	
Colored.....lb.	.01	.01 1/8	
Untrimmed arctics.....lb.	.01	.01 1/8	

Inner Tubes			
No. 1, floating.....lb.	.06 3/4	.07	
No. 2, compound.....lb.	.03 3/4	.04	
Red.....lb.	.02 3/4	.02 7/8	
Mixed tubes.....lb.	.03 3/4	.03 3/8	

Tires (Akron District)			
Pneumatic Standard			
Mixed auto tires with			
beads	ton	9.75	/10.00
Beadless	ton	16.00	/16.50
Auto tire carcass.....	ton	11.00	/12.00
Black auto peelings.....	ton	20.50	/21.00

Solid			
Clean mixed truck.....ton	38.00	/40.00	
Light gravity.....ton	40.00	/42.00	

Mechanicals			
Mixed black scrap.....lb.	.01	.01 1/8	
Hose, air brake.....ton	15.00	/16.00	
Garden, rubber covered.....ton	13.00	/13.50	
Steam and water, soft.....ton	13.00	/13.50	
No. 1 red.....lb.	.01 1/2	.02	
No. 2 red.....lb.	.01 1/4	.01 1/2	
White druggists' sundries.....lb.	.02	.02 1/2	
Mechanical.....lb.	.01 1/4	.01 1/2	

Hard Rubber			
No. 1 hard rubber.....lb.	.10 3/4	.10 7/8	

Cotton and Fabrics

(Continued from page 76)

clear that manufacturers purpose to hold down their production in strict conformity with consuming demand. Fabric prices tend to advance slowly. Present prices must appeal to buyers if cotton is to sell at 12¢ or higher.

SHEETINGS. The Government was a large buyer of sheetings for emergency relief work for the coming winter. This business stimulated demand by numerous large uses in the trade, resulting during the middle of August in the largest week of business since one in February, 1934. Prices remain very close to the levels obtaining at that time.

RAINCOAT FABRICS. Manufacturers of

raincoats are doing a very fine business in their fall lines, which are now being offered. All are attractive, but there is no outstanding number. A new raincoat material known as "Glitter" is quite popular.

Tire Production Statistics

Pneumatic Casings—All Types			
	In-ventory	Produc-tion	Total Shipments
1932	6,115,487	32,067,732	32,200,820
1933	7,110,456	36,243,384	35,274,970
1934			
Jan.	9,393,857	3,803,939	3,125,726
Feb.	10,403,282	4,205,039	3,186,363
Mar.	11,301,142	5,024,718	4,096,273
Apr.	11,621,310	4,626,881	4,305,227
May	10,792,770	4,322,536	5,171,748
June	9,912,780	4,211,903	5,071,403
Solid and Cushion Tires			
1932	23,830	97,089	108,581
1933		130,987	126,990
1934			
Jan.	29,971	13,792	13,946
Feb.		12,440	12,797
Mar.	28,280	15,017	15,273
Apr.		16,217	13,701
May		18,639	17,551
June		21,385	19,487
Inner Tubes—All Types			
1932	5,399,551	29,513,246	30,328,536
1933	6,251,941	34,044,689	33,112,472
1934			
Jan.	8,150,708	3,444,574	3,102,931
Feb.	8,892,154	3,956,082	3,223,591
Mar.	9,936,574	5,038,649	3,994,683
Apr.	10,267,331	4,593,370	4,212,020
May	9,741,304	4,228,239	4,754,683
June	8,531,574	3,974,408	5,149,951

Cotton and Rubber Consumption Casings, Tubes, Solid and Cushion Tires		Consumption of Motor Gasoline (100%) Gallons	
Pounds		Pounds	
1932...	128,981,222	416,577,333	15,703,800,000
1933...	148,989,293	512,489,423	15,880,746,000
1934			
Jan.	16,437,210	59,957,163	1,239,798,000
Feb.	18,720,923	63,400,171	1,047,816,000
Mar.	20,927,389	75,636,859	1,298,472,000
Apr.	19,371,041	69,930,591	1,374,870,000
May	18,785,428	67,636,897	1,601,922,000
June	17,715,577	61,849,692	1,524,432,000

Rubber Manufacturers Association, Inc., figures representing approximately 97% of the industry for 1934 and 80% for previous years, with the exception of gasoline consumption.

MAILING LISTS

Pave the way to more sales with actual names and addresses of Live prospects.

Get them from the original compilers of basic list information—up to date—accurate—guaranteed.

Tell us about your business. We'll help you find the prospects. No obligation for consultation service.



FREE
60 page Reference Book and Mailing LIST CATALOG

Gives counts and prices on 8,000 lines of business. Shows you how to get special lists by territories and line of business. Auto lists of all kinds. Shows you how to use the mails to sell your products and services. Write today.

R. L. POLK & CO.

Polk Bldg.—Detroit, Mich.

Branches in Principal Cities

World's Largest City Directory Publishers

Mailing List Compilers. Business Statistics. Producers of Direct Mail Advertising.

TIRE FABRICS. Demand is moderate and seasonal. Prices are nominal, steady, and unchanged.

Trade Marks

(Continued from page 64)

- 314,669. **Syntex.** Artificial dispersions of rubber in water. Flintkote Corp., assignor to Flintkote Co., both of New York, N. Y.
- 314,673. Oval containing the word: "Multi-duty." Sheaves and pulleys. Gates Rubber Co., Denver, Colo.
- 314,746. **Hiway Blox.** Brake linings and clutch facings. Raybestos-Manhattan, Inc., Passaic, N. J.
- 314,760. **X A.** Rubber liners for teat cups of milking machines. De Laval Separator Co., New York, N. Y.
- 314,772. **Flextem.** Inner tubes. Watson Rubber Stem Tube Co., Little Rock, Ark.

Foreign Trade Information

For further information concerning the inquiries listed below address United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Room 734, Custom House, New York, N. Y.

No.	COMMODITY	CITY AND COUNTRY
17,541	Tire casings and tubes.	Sofia, Bulgaria
17,582	Rubber-insulated wire.	Danzig, Germany
17,590	Bathing accessories, toys, gloves, shoes, garden hose, floor coverings, compressed air hose, etc.	Santa Cruz de Tenerife, Canary Islands
17,623	Motorcycle tires	Vienna, Austria

*Purchase. †Purchase and agency.

United States Latex Imports

Year	Pounds	Value
1931	10,414,712	\$884,355
1932	11,388,156	601,999
1933	24,829,861	1,833,671
1934		
Jan.	2,521,961	\$239,054
Feb.	1,983,210	193,732
Mar.	2,539,425	257,545
Apr.	2,988,131	321,390
May	3,151,740	368,642
June	3,266,318	421,317

Data from United States Department of Commerce, Washington, D. C.

World Rubber Absorption—Net Imports

Long Tons—1934			
CONSUMPTION	Apr.	May	June
United States ...	45,957	44,462	41,146
United Kingdom.	8,202	9,706	13,045
NET IMPORTS			
Australia	415	769	1,512
Austria	*400	*400	*400
Belgium	504	214	837
Canada	2,419	2,218	2,208
Czechoslovakia ..	465	1,767	
Denmark	117	180	214
Finland	227	90	171
France	8,192	8,556	8,935
Germany	6,701	6,499	6,171
Italy	1,966	2,207	
Japan	5,679	6,905	
Netherlands	262	322	331
Norway	83	65	
Russia	1,326	4,360	
Spain	752	147	
Sweden	790	605	
Switzerland	142	194	142
Others	*2,250	*2,250	*2,250
Totals	86,849	91,916	
Minus U. S. (Cons.)	45,957	44,462	41,146
Total Foreign	40,892	47,454	

*Estimate to complete table. Compiled by Leather-Rubber-Shoe Division, Department of Commerce, Washington, D. C.

CLASSIFIED ADVERTISEMENTS

ALL CLASSIFIED ADVERTISING MUST BE PAID IN ADVANCE

GENERAL RATES

Light face type \$1.00 per line (ten words)
Bold face type \$1.25 per line (eight words)

Allow nine words for keyed address.

SITUATIONS WANTED RATES

Light face type 40c per line (ten words)
Bold face type 55c per line (eight words)

SITUATIONS OPEN RATES

Light face type 75c per line (ten words)
Bold face type \$1.00 per line (eight words)

Replies forwarded without charge.

SITUATIONS WANTED

PRODUCTION AND PRESSROOM FOREMAN LOOKING FOR A new connection. Noted for excellent ideas and new methods of producing. Experienced in all kinds of molded goods, such as heels, soles and cement applied soles. Address Box No. 410, care of INDIA RUBBER WORLD.

ORIGINATOR OF NEW PRODUCTS, SALESMAN, SALES LETTERS, advertising copy, and displays. Rubber articles I have originated and marketed have kept present connection profitably busy. Desire to change. Address Box No. 411, care of INDIA RUBBER WORLD.

PRODUCTION MANAGER, 10 YEARS' EXPERIENCE, FAMILIAR with costs, time study, production and mold engineering of automotive mechanicals and other rubber manufacturing problems, desires permanent connection with progressive concern. Good record of employment and references. Address Box No. 412, care of INDIA RUBBER WORLD.

CHEMIST, B.S.C., WITH FOURTEEN YEARS' EXPERIENCE. Accustomed to independent investigation. Thorough training in mill room work and process control. Competent analyst. Address Box No. 414, care of INDIA RUBBER WORLD.

WILL BUY PART INTEREST SMALL MECHANICAL PLANT AND handle factory. Experienced molded goods, hose, hard rubber, belting, etc. Excellent references. Address Box No. 417, care of INDIA RUBBER WORLD.

PROFESSIONAL SERVICES ENGINEERS • CONSULTANTS • CHEMISTS

ROYCE J. NOBLE, Ph.D.

Chemical Engineer Latex Processes

56 WILBUR STREET

MALDEN, MASS.

V. L. SMITHERS, Inc.

Rubber Testing Laboratories

2706 FIRST CENTRAL TRUST BLDG.

AKRON, O.

PAUL A. FRANK

RUBBER Products—Processes—Machinery

I finance and direct the development and promotion of inventions which relate to the rubber industry.

SECOND NATIONAL BLDG.

AKRON, O.

SITUATIONS WANTED—Continued

SUPERINTENDENT, YEARS OF EXPERIENCE IN rubberizing all kinds of fabric both calendered and spread, for raincoat materials, hospital sheeting, and specialties of all kinds. Complete knowledge of compounds and development of plant operation. Address Box No. 413, care of INDIA RUBBER WORLD.

WANTED: POSITION AS FACTORY MANAGER OR superintendent in small mechanical rubber plant with low overhead, by experienced man who can add additional business; Christian concern; New England preferred, having calender, tubing machine, and presses. Address Box No. 419, care of INDIA RUBBER WORLD.

SITUATION OPEN

GUTTA PERCHA MIXER WANTED. ONLY THOSE WITH EXPERIENCE on making backing cloth need apply. State full particulars. Address Box No. 416, care of INDIA RUBBER WORLD.

CALENDER SHELLS ANY DIAMETER, ANY LENGTH The W. F. Gammeter Co., Cadiz, Ohio

WOOD FLOUR

AN EXCELLENT FILLER

UNIFORM SCREEN ANALYSIS

Becker, Moore & Co., Inc.

NORTH TONAWANDA, N. Y.

LIQUID LATEX

NORMAL and CONCENTRATED

Agents in U. S. A. for Dunlop Concentrated
60% Latex, Product of Dunlop Plantations, Ltd.

CHARLES T. WILSON CO., INC.

99 WALL STREET

NEW YORK, N. Y.

United States Statistics

Imports for Consumption of Crude and Manufactured Rubber

	May, 1934		Five Months Ended May, 1934	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—Free				
Crude rubber.....	108,627,059	\$10,001,239	483,284,225	\$37,664,992
Liquid latex.....	3,151,740	368,642	13,184,467	1,380,363
Jelutong or pontianak.....	1,204,246	95,710	5,690,453	510,337
Balata.....	319,658	65,471	1,304,329	247,794
Gutta percha.....	639,223	58,251	1,592,743	153,487
Guayule.....	224,000	18,928	560,000	47,320
Scrap and reclaimed, etc.....	1,174,983	10,057	4,259,070	35,448
Totals.....	115,340,909	\$10,618,298	509,875,287	\$40,039,741
Chicle, crude.....	614,105	\$126,147	3,151,579	\$720,157
MANUFACTURED—Dutiable				
Rubber soled footwear with fabric uppers.....	160,868	\$40,163	734,439	\$216,408
Rubber toys.....	27,503	.....	.....	124,623
Druggists' sundries, n. e. a. ....	.....	4,510	.....	32,292
Combs, hard rubber, number.....	103,414	4,417	677,812	30,166
Golf balls.....	84,586	22,030	246,134	61,267
Tennis and other rubber balls.....	424,773	28,290	1,325,284	90,891
Tires.....	1,560	3,935	12,809	.....
Other rubber manufactures.....	.....	43,428	.....	196,162
Totals.....	.....	\$174,276	.....	\$764,618

Exports of Foreign Merchandise

RUBBER AND MANUFACTURES				
Crude rubber.....	5,350,534	\$544,212	27,455,805	\$2,544,326
Balata.....	15,044	2,585	54,636	14,612
Guayule.....	.....	.....	16,800	1,419
Gutta percha, rubber substitutes, and scrap.....	1,935	703	1,935	703
Rubber manufactures.....	.....	3,284	.....	6,782
Totals.....	.....	\$550,784	.....	\$2,567,842

Exports of Domestic Merchandise

RUBBER AND MANUFACTURES				
Reclaimed.....	1,251,517	\$60,378	4,303,332	\$198,583
Scrap.....	2,737,671	63,638	17,670,514	346,263
Rubberized automobile cloth, sq. yd.	82,541	38,820	316,565	159,575
Other rubberized piece goods and hospital sheeting, sq. yd.	82,480	35,912	311,612	135,606
Footwear.....	.....	.....	.....	.....
Boots.....	2,563	5,689	23,039	57,505
Shoes.....	17,244	5,919	87,551	42,214
Canvas shoes with rubber soles.....	6,129	5,342	55,779	38,372
Soles.....	3,222	5,010	20,014	28,745
Heels.....	28,432	14,707	145,255	76,713
Water bottles and fountain syringes.....	9,319	3,711	78,605	27,535
Gloves.....	5,787	11,835	23,278	47,118
Other druggists' sundries.....	.....	35,713	.....	146,969
Balloons.....	7,378	7,009	88,948	79,503
Toys and balls.....	.....	2,389	.....	14,164
Bathing caps.....	9,378	18,053	58,872	104,460
Bands.....	39,258	12,441	126,456	40,150
Erasers.....	28,915	15,646	128,105	68,430
Hard rubber goods.....	.....	.....	.....	.....
Electrical goods.....	82,736	8,281	467,950	49,859
Other goods.....	.....	14,294	.....	67,074
Tires				
Truck and bus casings, number.....	32,425	493,253	125,975	1,913,925
Other automobile casings, number.....	89,966	536,504	369,632	2,479,514
Tubes, auto, number.....	73,879	81,984	326,569	355,462
Other casings and tubes, number.....	5,273	13,727	19,473	52,734
Solid tires for automobiles and motor trucks, number.....	419	12,112	2,869	80,577
Other solid tires.....	151,030	18,429	669,144	84,897
Tire sundries and repair materials.....	.....	39,974	.....	160,763
Rubber and friction tape.....	41,535	11,582	240,438	62,711
Belting.....	184,508	85,324	984,227	426,729
Hose.....	303,469	79,402	1,662,144	466,515
Packing.....	86,231	30,656	442,761	182,072
Thread.....	145,086	88,177	559,407	337,594
Other rubber manufactures.....	.....	102,330	.....	507,202
Totals.....	.....	\$1,958,241	.....	\$8,839,533

London Stocks, June, 1934

	Stocks, June 30				
	Landed Tons	De-livered Tons	1934 Tons	1933 Tons	1932 Tons
LONDON	.....	.....	.....	.....	.....
Plantation.....	7,609	4,143	45,639	42,979	50,965
Other grades.....	40	22	35	53	44
LIVERPOOL	.....	.....	.....	.....	.....
Plantation.....	*1,846	*1,825	*54,028	*59,419	*58,500
Total tons, London and Liverpool.....	9,495	5,990	99,702	102,451	109,509

*Official returns from the recognized public warehouses.

Rubber Goods Production Statistics

	1934		1933	
	May	May	May	May
TIRES AND TUBES*				
Pneumatic casings.....
Production.....
Shipments, total.....
Domestic.....
Stocks, end of month.....
Solid and cushion tires.....
Production.....
Shipments, total.....
Domestic.....
Stocks, end of month.....
Inner tubes.....
Production.....
Shipments, total.....
Domestic.....
Stocks, end of month.....
Raw material consumed.....
Fabrics.....
MISCELLANEOUS PRODUCTS				
Rubber bands, shipments.....
Rubber clothing, calendered.....
Orders, net.....
Production.....
Rubber-proofed fabrics, production, total.....
Auto fabrics.....
Raincoat fabrics.....
Rubber flooring, shipments.....
Rubber and canvas footwear.....
Production, total.....
Tennis.....
Waterproof.....
Shipments, total.....
Tennis.....
Waterproof.....
Shipments, domestic, total.....
Tennis.....
Waterproof.....
Stocks, total, end of month.....
Tennis.....
Waterproof.....
Rubber heels.....
Production.....
Shipments, total.....
Export.....
Repair trade.....
Shoe manufactures.....
Stocks, end of month.....
Rubber soles.....
Production.....
Shipments, total.....
Export.....
Repair trade.....
Shoe manufactures.....
Stocks, end of month.....
Mechanical rubber goods, shipments.....
Total.....
Belting.....
Hose.....
Other.....

*Data for 1934 are estimated to represent approximately 97% of the industry.
Source: Survey of Current Business, Bureau of Foreign & Domestic Commerce, Washington, D. C.

Imports by Customs Districts

	June, 1934		June, 1933	
	*Crude Rubber Pounds	Value	*Crude Rubber Pounds	Value
Massachusetts.....	10,500,445	\$1,103,980	8,959,488	\$322,388
New York.....	87,347,235	8,910,884	40,023,610	1,419,533
Philadelphia.....	1,251,254	116,014	1,367,975	42,258
Maryland.....	3,574,188	321,596	1,319,797	37,707
Mobile.....	1,347,817	111,388	.....	.....
New Orleans.....	369,507	32,298	179,200	4,576
Los Angeles.....	4,634,871	554,842	719,294	17,590
San Francisco.....	168,750	17,719	58,000	2,150
Oregon.....	.....	.....	22,400	1,120
Ohio.....	448	60	.....	.....
Total.....	109,194,515	\$11,168,781	52,649,764	\$1,847,322

*Crude rubber including latex dry rubber content.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

No.	INQUIRY
1688	Source of supply of perilla oil.
1689	Source of supply of perilla wax.
1690	Manufacturer of rubber tires for toys.
1691	Manufacturer of self-vulcanizing cement.
1692	Manufacturer of "Blancol."
1693	Who gives a course in pneumatic tire construction.
1694	Manufacturer of small rubber balls.
1695	Manufacturer of rubber dolls.
1696	Manufacturer of rubber bathing suits and raincoats.
1697	Seller of Seckay wax in the United States.
1698	Manufacturer of Dicolite.
1699	Manufacturer of uncured rubber bandages.

ERNEST JACOBY

Crude Rubber

Liquid Latex

Carbon Black

Clay

Stocks of above carried at all times

BOSTON

MASS.

Cable Address: Jacobite Boston

Classified Advertisements

Continued

BUSINESS OPPORTUNITIES

RUBBER TECHNOLOGIST, WITH BASIC INVENTION IN AUTOMOTIVE plastic rubber field, also thoroughly versed in applied latex technology, wishes to secure financial backing from private or business source for commercial exploitation. Address Box No. 418, care of INDIA RUBBER WORLD.

Licenses or Patents Wanted for French Concern

This firm wishes to buy Licenses or Patents covering new processes for manufacturing rubber balls, balloons, toy bathing shoes or other new rubber goods. Address:

Box No. 415, care of INDIA RUBBER WORLD

**New and Used
RUBBER MACHINERY
M. Norton & Co.
Medford, Mass.**

Genasco (M.R.) Hydrocarbon

(SOLID OR GRANULATED)

A hard, stable compound—produced under the exacting supervision of an experienced and up-to-date laboratory.

Aging tests have proved Genasco to be always of uniform quality. Shipped to all parts of the world in metal drums. Stocks carried at Maurer, N. J. and Madison, Ill.

THE BARBER ASPHALT COMPANY
Philadelphia New York Chicago St. Louis

**Crude Rubber
Balata
Pontianac
Gutta Percha**

**LITTLEJOHN & CO., Inc.
IMPORTERS
133 FRONT STREET NEW YORK**

NORMAL - CONCENTRATED - PROCESSED

Heveatex

RUBBER LATEX

Always In Stock for Immediate Delivery

HEVEATEX CORPORATION

78 GOODYEAR AVE.

MELROSE, MASS.

Plant for Sale

Real Estate, Machinery and Equipment of Victor Rubber Corporation will be offered at public sale as a whole and separately, beginning Monday, September 10th, at two P. M. and continuing to September 11th, at Maitland (Springfield suburb), Ohio.

Consists of 4.89 acres of land located on two railroads. Buildings of concrete and steel, or brick and frame, fully sprinklered, comprising about 70,000 square feet of floor space. Machinery and equipment includes power plant, machine shop, mills, calenders, tubing machines, curing presses for automobile mats and similar flat goods, as well as smaller presses for molded goods, trimming presses, radiator hose making equipment, and equipment for manufacturing reclaim; scales, factory trucks, platforms and smaller items.

Wire or write for complete lists. Address L. C. STURGIS, Receiver, Victor Rubber Corporation, Springfield, Ohio.

BAIRD

RUBBER & TRADING CO., Inc.

**CRUDE RUBBER
AND
LIQUID LATEX**

233 Broadway

New York

BROCKTON TOOL COMPANY

103 BELMONT STREET

QUALITY HEEL MOULDS

BROCKTON, MASS.

MOULDS FOR PLAIN AND SPORT SOLES—MECHANICAL GOODS AND SPECIALTIES

MECHANICAL MOLDED RUBBER GOODS

We Solicit Your Inquiries
THE BARR RUBBER PRODUCTS COMPANY
SANDUSKY, OHIO

INTERNATIONAL PULP CO.

41 Park Row, NEW YORK, N. Y.

SOLE PRODUCERS

ASBESTINE

REG. U. S. PAT. OFF.

Classified Advertisements

Continued

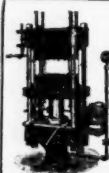
MACHINERY AND SUPPLIES FOR SALE

FOR SALE: ONE 18 BY 54" BIRMINGHAM 4-ROLL CALENDER; one unused 18 by 30" heavy duty FARREL MILL, chain drive; complete line of W. & P. Mixers, Vacuum Shelf Driers, Calenders, Mills, Colloid Mills, Pebble Mills, Dough Mixers, Hydraulic Presses, Pumps, etc. Rebuilt, guaranteed. What machinery have you for sale? CONSOLIDATED PRODUCTS CO., INC., 13-16 Park Row, New York, N. Y.

ATLAS EQUIPMENT COMPANY

114 So. Clinton St., Chicago, Ill.

Offers for sale: 1—Birmingham 36 x 18 Calender with Birmingham Reduction gear and magnetic clutch; 3 Textile-Finishing Machinery Company Copper 6 can Vertical Driers, cans 24x64" with pile winders.



PLASTICS MOLDING PRESSES

Plain or Semi-automatic—Any Size or pressure—Pumps, Valves, etc.
Dunning & Boschert Press Co., Inc.

336 W. WATER ST.

SYRACUSE, N. Y.

THE WEST COMPANY

132 Library Street

Chelsea, Boston, Mass.

Manufacturers of

ROSIN OIL—BURGUNDY PITCH—SPECIAL COMPOUNDS

Dealers in

PARAFFINE WAX, PETROLATUM, PINE TAR, ROSIN, SOLVENTS, OILS, PIGMENTS

RUBBER MACHINERY

New and Used
LAWRENCE N. BARRY, Inc.

41 Locust Street

Medford, Mass.

GUARANTEED REBUILT MACHINERY

IMMEDIATE DELIVERIES FROM STOCK

 MILLS, CALENDERS, TUBERS, HYDRAULIC PRESSES, PUMPS,
VULCANIZERS, TIRE MAKING EQUIPMENT, MOULDS, ETC.


UNITED RUBBER MACHINERY EXCHANGE

319-323 FRELINGHUYSEN AVE.,

Cable Address "Urme"

NEWARK, N. J.

Rebuilt and New Rubber Mill Machinery of Every Type

GUARANTEED EQUIPMENT—PROMPT SHIPMENT

FACTORY OUTFITTERS FROM A BOLT TO A COMPLETE PLANT
Engineering and Erecting Service

L. ALBERT & SON

 Warehouses
TRENTON, N. J.
AKRON, OHIO
COMPTON, CALIF.

MAIN OFFICE—TRENTON, N. J.

CABLE ADDRESS

 ALBERTSON
TRENTON

We Carry the Largest Stock in the World

COTTON FLOCKS

QUALITY COUNTS

Our best customers are the leaders in the rubber industry.

They Know Quality!

FOR
MANUFACTURERS
OF

**HEELS.
SOLES.
TILING
AND
OTHER
MECHANICAL
RUBBER
GOODS**

CLAREMONT WASTE MFG. CO.
DEPT. IR CLAREMONT, N.H. U.S.A.

LIBERAL
WORKING
SAMPLES
SUPPLIED

THE LACQUER FOR YOUR COMPOUND

Not one lacquer for all purposes, but the lacquer designed to meet your particular requirements. That is our business.

Proven results on Dolls, Toys, Fender Flaps, Rubber Heels, Leatherette, etc.

The Monroe Sander Corporation

10-18 46th Avenue Long Island City, N. Y.

European Agents: The Wayne V. Myers Company, Ltd.
57-58 Dolben St., Blackfriars Road, London, S. E. 1.

SAMPLE and PRODUCTION

MOLDS

FOR THE RUBBER TRADE

HIGHEST QUALITY and MADE TO SPECIAL ORDER

FRANZ P. NIEDERMAYR

PATTERN AND MACHINE WORKS, INC.

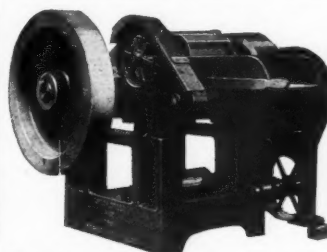
208 LAFAYETTE ST.

NEW YORK

GIANT CUTTERS

CUT RUBBER SCRAP "CLEANER AND BETTER"

Write for descriptive literature today



TAYLOR, STILES &
COMPANY
Riegelsville, N. J.

SOLE AGENT FOR EUROPE:
R. J. Marx, 133 Finsbury
Pavement, London, E. C., Eng.

Capacities from 2 to 5 tons per hour

JOHNSON SUPER PRODUCTION TUBER

Tremendous reductions in insulating costs can but result from the use of the machine, for its characteristics insure speed, uniformity, and quality.

Write for bulletins and other information

NEW ENGLAND BUTT CO.

Sole manufacturers under Johnson Patents
up to and including 3 3/4" worm.

PROVIDENCE, R. I.

U. S. A.

CHICAGO, ILL.

ARCHER RUBBER CO. Manufacturers

Royal Archer Lines

Rubber Covered Rolls for Paper, Textile,
and Printing Trades

Piano and Organ Cloths Rubber Tubings

Hospital Sheetings and Blankets

Pure Gum Rubber Aprons, Baby Pants and
Crib Sheetings

Rubber Surface
Clothing

Aprons, Ponchos,
Rubber Fabrics

RUBBERIZING FOR THE TRADE

Factory and Main Office, MILFORD, MASS.

New York Office—45 E. 17th Street, New York City

Success of "Colloidal Whiting" Insures
"Higher Tensile Product at
Lower Volume Cost"

HAKUENKA

For information address

SHIRAIISHI KOGYO KAISHA, LTD.

TOKYO and OSAKA, JAPAN

MECHANICAL FABRIC CO.

PROVIDENCE

RHODE ISLAND

MANUFACTURERS OF

RUBBER THREAD

FOR ELASTIC GOODS, MODEL AIRPLANES, NOVELTIES

GOLF BALL TAPES

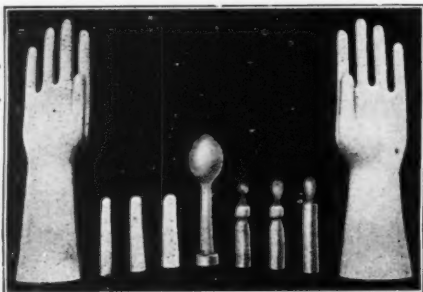
AND

COMPLETE LINE OF

CARD CLOTHING FOUNDATIONS

— Established 1890 —

What Does the Patented Porcelain Plug Mean?



This great improvement stops 90% of form breakage at base and prevents fasteners coming loose. Our better finish Craze Proof Vitrified Porcelain Forms are demanded by leading producers of rubber dipped goods. Orders filled promptly. Write for quotations.

SEVILLE PORCELAIN CO., Seville, Ohio
"Largest Exclusive Manufacturers"

THE H. O. CANFIELD CO.

MANUFACTURE

Molded Specialties, Plumbers' Rubber Goods, Valves, Gaskets, Hose Washers, and Cut Washers of all kinds

Write for prices and samples

Offices and Works - Bridgeport, Conn.



FACTICE GIVES

That Velvet Feel to Rubber

The STAMFORD RUBBER SUPPLY CO.
STAMFORD, CONN.
Established 1900

SERICITE

MOULD LUBRICANT

Pat. No. 1591767

Sole Licensed Sellers

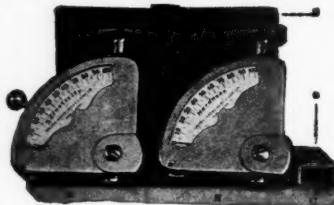
WHITTAKER, CLARK & DANIELS, INC.
245 Front St., New York City

An International Standard of Measurement for— Hardness + Elasticity + Plasticity of Rubber, etc.

Is the DUROMETER
and ELASTOMETER
(19th year)

These are all factors vital in the selection of raw material and the control of your processes to attain the required modern Standards of Quality in the Finished Product. Universally adopted.

It is economic extravagance to be without these instruments. Used free handed in any position or on Bench Stands, convenient, instant registrations, fool proof. Ask for our Descriptive Bulletins, and Price List R-4 and R-5.



THE SHORE INSTRUMENT & MFG. CO.
Van Wyck Avenue and Carll Street, JAMAICA, NEW YORK
Agents in all foreign countries.

RUBBERIZED FABRICS OF OUTSTANDING QUALITY FOR EVERY PURPOSE

Aldan Rubber Co.

HARRY M. DANNENBAUM, Pres.
MAIN OFFICE 1011-27 WOOD ST., PHILADELPHIA
NEW YORK CHICAGO
111 Fifth Ave. 327 So. LaSalle St.

Rubber Equipment Manufacturers & Engineers

MIXING AND MOLDING EQUIPMENT
FOR BAKELITE, PLASTICS, ETC.
STEEL & IRON FOUNDRIES
PATTERN & FORGE SHOPS
MACHINE SHOP

THE ADAMSON MACHINE CO.
AKRON, OHIO

We have served the Rubber Industry for 39 years

FINELY PULVERIZED—BRILLIANT

COLORS

STEAM-PRESS

Chicago Representative Pacific Coast Representative
FRED L. BROOKE MARSHALL DILL
228 N. La Salle St. San Francisco
Cleveland FRED H. PALMER, JR., 750 Prospect Ave.

Manufactured by
BROOKLYN COLOR WORKS, INC.
129-143 Cherry Street Brooklyn, N. Y.

A LEADER FOR MORE THAN FORTY-EIGHT YEARS

GUMMI-ZEITUNG

A trade journal for the Rubber, Gutta-Percha, Asbestos,
and Celluloid Industries and Their Allied Trades.

WORLD WIDE CIRCULATION FOR THE RUBBER GOODS TRADE

Published Every Friday

Subscription in Germany - - - RM 24 Per Year

Subscription in Other Countries - RM 32 Per Year

An excellent advertising medium for those wishing to
establish trade connections in Germany.

MAIN OFFICE

GUMMI-ZEITUNG

KRAUSENSTRASSE 35/36

BERLIN S. W. 19

REVUE GÉNÉRALE DU CAOUTCHOUC

ORGAN OF THE FRENCH SYNDICATE
OF RUBBER AND ALLIED INDUSTRIES

DIRECTION
18, RUE DUPHOT. PARIS 12^e
MONTHLY REVIEW
ANNUAL SUBSCRIPTION 80 FR.
FREE COPY SENT ON APPLICATION

TO SELL IN FRANCE

Advertise your products in the Revue Générale du Caoutchouc published by the French Syndicate of Rubber, grouping over 200 manufacturers.

Encyclopédie du Caoutchouc & des Industries qui s'y
Rattachent

This large size volume constitutes a new and interesting departure for technical works. It is edited by 25 French technicians who have divided the work in such a fashion that each treats the question in which he has specialized. This well-authenticated work with more than three hundred illustrations forms the most complete collection of all present knowledge on rubber in the French language. Per copy bound, \$6; per copy sewn in paper covers, \$5.

This index is maintained for the convenience of our readers. It is not a part of the advertiser's contract, and INDIA RUBBER WORLD assumes no responsibility to advertisers for its correctness.

[illegible]

